

4.12 Test Excavation 167 (T-167)

Ahupua'a:	Honolulu
LCA :	378
TMK #:	2-3-002-059
Elevation Above Sea Level:	2.2 m
UTM:	618813 mE, 2355402 mN
Max Length/Width/Depth:	3.5 m / 0.94 m / 2.15 m
Orientation:	130 / 310° TN
Targeted Project Component:	Station Column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 167 (T-167) was located within a parking lot paralleling Ward Avenue. T-167 was relocated approximately 15.0 m north of its original layout so that it would be within the station building footprint. T-167 was located on private property owned by Victoria Ward Ltd. There were no nearby utilities the area.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-167 was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-167 was located within marsh land called Kukuluao, 25.0 m north of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 43.0 m of T-167. The roadway is also depicted on the 1887 Wall map of Honolulu along with three structures in the vicinity of T-167. The structures were located approximately 85.0 m northwest, 50.0 m southwest, and 180.0 m southwest of T-167. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of T-167 including a near-modern street grid with the closest intersection being Queen Street and Cummins Street 140.0 m southeast and the Cyclomere bicycle track 300.0 m north. Expanded urbanization in the vicinity of T-167 is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Few archaeological studies were conducted in the immediate vicinity of T-167. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 190.0 m southeast of T-167. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 310.0 m east of T-167. No cultural resources were encountered (O'Leary and Hammatt 2006).

Documentation Limitations: T-167 was excavated to a depth of 2.15 mbs and below the water table at 2.11 mbs. There were no factors that limited the excavation of T-167.

Stratigraphic Summary: The stratigraphy of T-167 consisted of fill strata overlying natural sediment to the water table. Observed strata for the southwest wall included asphalt (Ia), extremely gravelly sand (Ib), loamy clay (Ic), loamy sandy clay (Id), sandy loam (Ie), sandy loamy clay (If), fine sand fill (Ig), gravelly sandy loam (Ih), gravelly sandy clay (Ii), gravelly fine sand (Ij), and silty clay (Ik), overlying a buried (medium sand) A-horizon (II) and coarse marine sand (III) to the water table. The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: A single traditional Hawaiian artifact (Acc. # 167-H-1) was collected from Stratum II at 1.4 mbs. The artifact is a drilled dog tooth that may have been part of a dog-tooth necklace (*lei 'ilio*) or part of a dog-tooth leg ornament (*kupe'e niho 'ilio*). Two miscellaneous historic artifacts (Acc. # 167-A-1 to A-2) were also collected. One glass insulator was recovered from Feature 3, 1.4 mbs in Stratum II. It had the mark of an insulator company in operation from 1864 to 1921. A porcelain insulator fragment (Acc. # 167-A-3) was recovered at 0.8 mbs from Stratum Ig.

Features Discussion: A total of four features (Feature 1-4) were identified originating from Stratum II within T-167 and were designated as features of SIHP# 50-80-14-7429.

SIHP# -7429 Feature 1 was interpreted as a pit feature of indeterminate function. Feature 1 originated in Stratum II between 1.40 mbs-1.45 mbs and measured 0.94 m in length and 0.87 m in width. This feature was irregular in shape and extended beyond the excavation boundaries. A bulk sample was collected from this feature.

SIHP# -7429 Feature 2 was interpreted as a possible post mold. Feature 2 originated in Stratum II between 1.41- 1.49 mbs and measured 0.32 m in length and 0.15 m in width. This feature was located at the southwest wall boundary where a bulk sample was collected.

SIHP# -7429 Feature 3 was interpreted as a pit feature of indeterminate function. Feature 3 originated in Stratum II between 1.40-1.48 mbs which encompassed a large portion of the southern portion of T-167. This feature was an irregular shape, measuring 2.13m in length and 0.94 m in width. A bulk sample was collected for this feature.

SIHP# -7429 Feature 4 was interpreted as a possible post mold. Feature 4 originated in stratum II between 1.54-1.66 mbs, was oblong in shape and measured 0.3 m long by 0.23 m wide located within the central portion of T-167.

The four features of SIHP# -7429 within Stratum II of T-167 included two possible post molds and two pit features of indeterminate function. The features may reflect temporary occupation of the landscape and subsequent historic impacts as evidenced by the presence of various historic materials. Stratum II and all associated features (Features 1-4) were considered to be components of SIHP# 50-80-7429.

Terrestrial Faunal Remains Collected During Excavation: Faunal remains were collected individually during excavation from three discrete features (of SIHP # 50-80-14-7429) within Stratum II, a culturally enriched buried A-horizon. Feature 1 (1.41-1.45 mbs) contained a single fragmentary medium mammal skeletal element; Feature 2 (1.41-1.49 mbs) contained irregular bone fragments of a medium mammal; and Feature 3 (1.4-1.45 mbs) contained both medium mammal and *Sus scrofa* skeletal elements. The medium mammal fragments from Features 2 and 3 were burnt, but showed no other signs of cultural modification; the medium mammal fragment

from Feature 1 showed no evidence of cultural modification. The *Sus scrofa* rib from Feature 3 was butchered with a metal blade, indicating an historic origin.

Sample Results: A total of six bulk sediment samples were collected from within T-167 including one sample from Stratum Ii at 0.95 mbs, SIHP# 7428 Feature 1 between 1.4-1.45 mbs, SIHP# -7429 Feature 2 between 1.41-1.49 mbs, SIHP# 7429 Feature 3 between 1.40-1.48 mbs, the Stratum II/III interface between 1.45-1.50mbs, and Stratum III between 1.45-1.50 mbs. All of the bulk samples were wet-screened.

The bulk sample collected from Stratum Ii at 0.95 mbs contained shell midden consisting of Echinodermata *Heterocentrotus mammillatus* (0.9 g).

The bulk sample collected from Feature 1 at 1.4-1.45 mbs contained Nertidae *Nerita picea* 1.9 g, possibly burned crustacean (0.7 g), naturally-deposited, water-rounded marine shell (non-midden) (0.8), and a metal fragment (0.4 g).

The bulk sample collected from Feature 2 at 1.41-1.49 mbs contained naturally-occurring, water-rounded marine shell (2.8g), rusted metal fragments (4.1 g), and fish bone (0.1 g).

The bulk sample collected from Feature 3, between 1.40-1.48 mbs contained charcoal (0.2 g), Neritidae *Nerita picea*(4.7 g), Isognomidae (1.2 g), Isognomidae *Isognomon* sp. (0.3 g), possibly burned Conidae *Conus* sp. (0.9 g), Strombidae *Strombus* sp. (0.3 g), Mitridae (0.3 g), Crustacean (2.2 g), Echinodermata spp. (1.7), Mytilidae *Brachidontes crebristriatus* (1.3 g), rusted metal fragments (4.1g), and an unidentified fish bone (0.1 g). The charcoal collected from Feature 3 was submitted for wood taxa identification. Wood taxa analysis identified cf. Conifer (pine, fir), a historically-introduced tree.

The bulk sample collected from the Stratum II/III interface between 1.45-1.50 mbs. contained Nertidae *Nerita picea* (0.7 g), a bottle glass fragment (3.5 g), and a rusted metal fragment (0.5 g).

The bulk sample collected from Stratum III between 1.60-1.84 mbs contained shell midden consisting of crustacean (5.2 g), Neritidae *Nerita picea* (3.4 g), Echinodermata *mathaei* sp. (2.2 g), and naturally occurring shell (7.4 g).

The results of sample analysis documented the presence of historic artifacts within SIHP# 7429 Features 1-3. Wood taxa analysis identified cf. Conifer (pine, fir), a historically-introduced tree, within Feature 3. Food refuse, including possible marine shell midden represented by various species and fish bone, was also identified.

GPR Discussion: A review of amplitude slice maps indicated no linear features which might indicate the presence of utilities. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs and increases again around 0.75 mbs.

GPR depth profiles for T-167 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.15 mbs. Anomalies were observed in the profile but were not encountered during excavation. The maximum depth of clean signal return was approximately 1.0 mbs.

Summary: T-167 was excavated to a depth of 2.15 mbs and below the water table at 2.11 mbs. The stratigraphy of T-167 consisted of fill strata (Ia-Ik overlying natural sediment (II-III) to the water table. The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). A single traditional Hawaiian artifact (Acc. # 167-H-1) was collected from Stratum II at 1.4 mbs. The artifact is a drilled dog tooth that may have been part of a dog-tooth necklace (*lei 'ilio*) or part of a dog-tooth leg ornament (*kupe'e niho 'ilio*). Two miscellaneous historic artifacts (Acc. # 167-A-1 to A-2) were also collected. One glass insulator was recovered from Feature 3, 1.4 mbs in Stratum II. It had the mark of an insulator company in operation from 1864 to 1921. A porcelain insulator fragment (Acc. # 167-A-3) was recovered at 0.8 mbs from Stratum Ig. A total of four features (Feature 1-4) were identified originating from Stratum II within T-167 and were designated as features of SIHP# 50-80-14-7429. The four features of SIHP# -7429 within Stratum II of T-167 included two possible post molds and two pit features of indeterminate function. The features may reflect temporary occupation of the landscape and subsequent historic impacts as evidenced by the presence of various historic materials. Faunal remains were collected individually during excavation from SIHP# -7429 Features 1-3. The medium mammal fragments from Features 2 and 3 were burnt, but showed no other signs of cultural modification; the medium mammal fragment from Feature 1 showed no evidence of cultural modification. The *Sus scrofa* rib from Feature 3 was butchered with a metal blade, indicating an historic origin. A total of six bulk sediment samples were collected from within T-167. The results of sample analysis documented the presence of historic artifacts within SIHP# 7429 Features 1-3. Wood taxa analysis identified cf. Conifer (pine, fir), a historically-introduced tree, within Feature 3. Food refuse, including possible marine shell midden represented by various species and fish bone, was also identified. Stratum II and all associated features (Features 1-4) were considered to be components of SIHP# 50-80-7429.



T-167 general location, view to the northwest



T-167 plan view (view to northwest), Features 1 and 2.



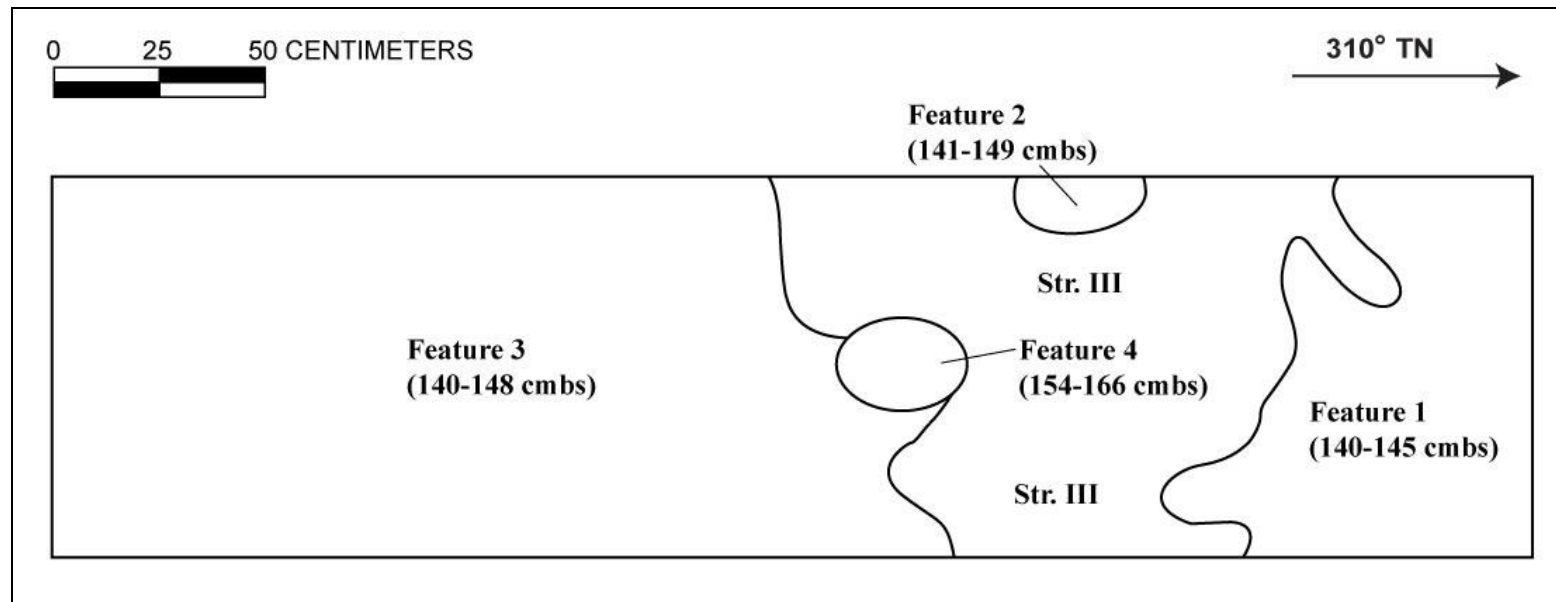
T-167 plan view (view to southeast), Feature 3.



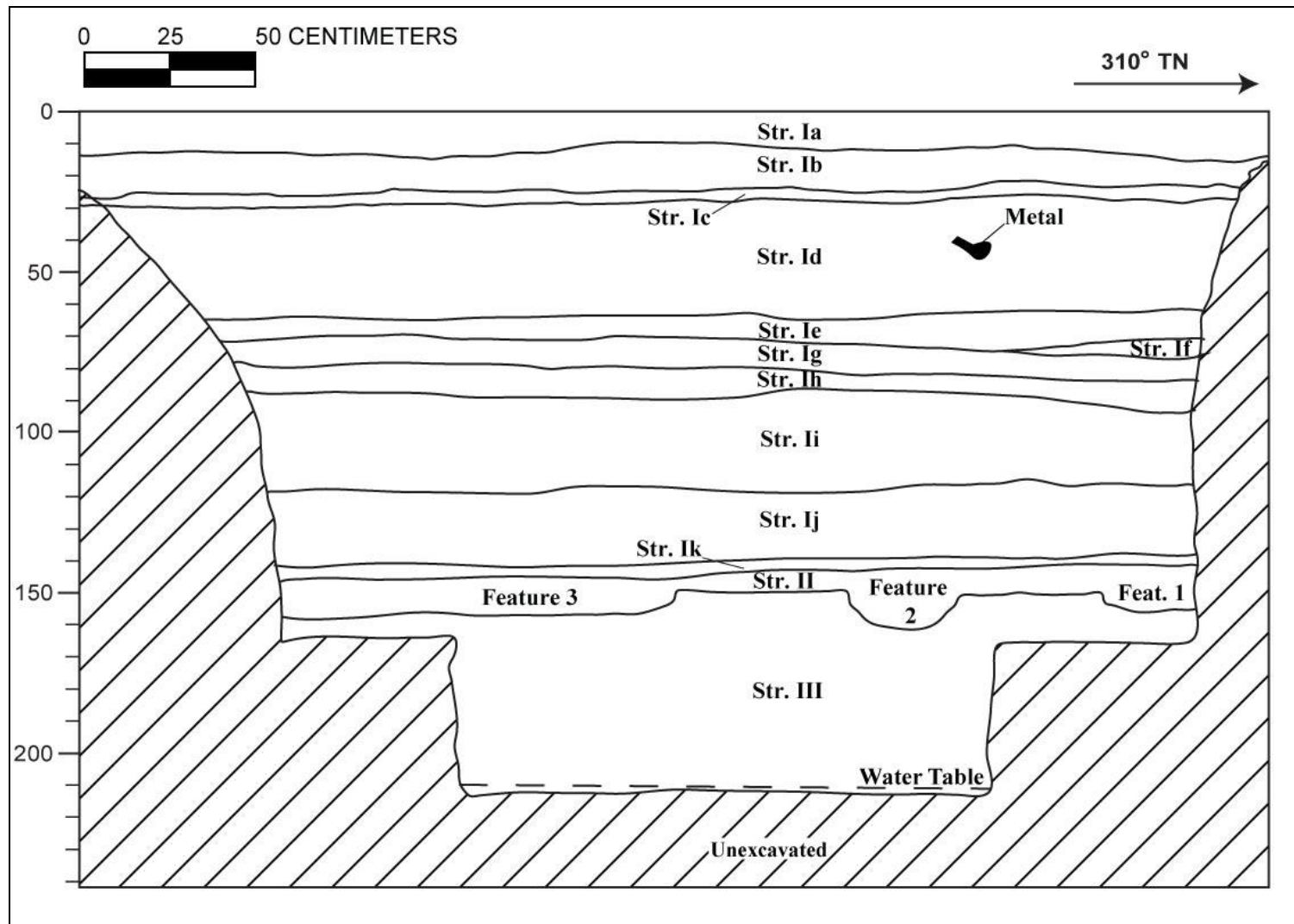
T-167 northeast profile wall (view to north)



T-167 southwest profile wall (view to west)



T-167 plan view showing SIHP# -7429 Features 1-4



T-167 southwest wall profile showing SIHP# -7429 Features 1-3

T-167 Stratigraphy Table

Stratum	Depth (cmbs)	Description
Ia	0-17	Asphalt
Ib	10-30	Fill; 2.5 YR 8/3 (pale yellow); extremely gravelly sand; structureless, single-grain; moist, very friable consistency; plastic; mixed origin; abrupt, smooth lower boundary; crushed coral base course
Ic	21-25	Fill; 5 YR 3/3 (dark reddish brown); loamy clay; weak, fine, medium, platy structure; moist, very friable consistency; slightly plastic; mixed origin; very abrupt, smooth lower boundary; ~5% small coral gravels
Id	25-64	Fill; 2.5 YR 3/2 (very dark grayish brown); loamy sandy clay; weak, medium, crumb structure; moist, very friable consistency; slightly plastic; mixed origin; clear, smooth lower boundary; ~10% coral gravels, cobbles, 5 coral boulders
Ie	58-73	Fill; 10 YR 2/2 (very dark brown); sandy loam; weak, fine crumb structure; moist, very friable consistency; non-plastic; mixed origin; abrupt lower boundary; ~2% coral gravels (very small)
If	66-72	Fill; 2.5 YR 2.5/4 (dark reddish brown); sandy loamy clay; weak, medium, coarse, crumb structure; moist, friable consistency; slightly plastic, mixed origin, abrupt, smooth, discontinuous lower boundary; flecked with coral
Ig	65-80	Fill; 2.5 YR 6/2 (light brownish gray); fine sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt lower boundary
Ih	74-87	Fill; 10 YR 2/1 (black); gravelly sandy loam; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; abrupt lower boundary; contained burnt trash, glass rusty nails, paper
Ii	82-115	Fill; 10 YR 7/2 (light gray); gravelly sandy clay; weak, fine, crumb structure; moist, very friable consistency; plastic; mixed origin; diffuse, smooth lower boundary
Ij	105-134	Fill; 2.5 Y 7/3 (pale yellow); gravelly fine sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; clear lower boundary
Ik	129-137	Fill; 10 YR 7/2 (light gray); silty clay; moderate, very fine, blocky structure, moist, firm consistency; very plastic; marine origin; very abrupt lower boundary
II	132-166	Natural, 10 YR 3/1 (very dark gray); medium sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; diffuse, irregular lower boundary; buried A-horizon; contained SIHP # -7429 Features 1-4
III	138-215	Natural; 5 Y 8/4 (pale yellow); coarse sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible

T-167 Terrestrial vertebrate material collected individually during excavation

Acc. #	Stratum	Depth (cmbs)	Feature	Family/Class	Species	Element	Description	Modification
167-F-1	II	140-145	Feature 3	Suidae (pig)	<i>Sus scrofa</i>	Rib; Irregular bones	Fragments	Rib butchered (cut with metal)
167-F-2	II	140-145	Feature 3	Mammalia	Medium mammal	Diaphysis section; Irregular bones	Fragments	Diaphysis section burned
167-F-3	II	141-145	Feature 1	Mammalia	Medium mammal	Diaphysis section	Fragment	None
167-F-4	II	141-149	Feature 2	Mammalia	Medium mammal	Irregular bones	Fragments	Burned

4.13 Test Excavation 168 (T-168)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:059
Elevation Above Sea Level:	2.1 m
UTM:	618823 mE, 2355399 mN
Max Length/Width/Depth:	6.8 m / 0.75 m / 2.15 mbs
Orientation:	143 / 323° TN
Targeted Project Component:	Station Building
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 168 (T-168) was located approximately 79.0 m southeast of Ward Avenue and Ilaniwai Street intersection, and was located within a parking lot. T-168 was located on private property owned by Victoria Ward Ltd. No utilities were noted in the general vicinity. The excavation surface was level with the surrounding land surface.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-168 was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-168 was located within marsh land called Kukuluao, 24.0 m northeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 33.0 m of T-168. The roadway is also depicted on the 1887 Wall map of Honolulu along with three structures in the vicinity of T-168. The structures were located approximately 97.0 m northwest, 51.0 m southwest, and 180.0 m southwest of T-168. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of T-168 including a near-modern street grid with the closest intersection being Queen Street and Cummins Street 135.0 m southeast and the Cyclomere bicycle track 300.0 m north. Expanded urbanization in the vicinity of T-168 is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Few archaeological studies were conducted in the immediate vicinity of T-168. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 175.0 m southeast of T-168. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 300.0 m east of T-168. No cultural resources were encountered (O'Leary and Hammatt 2006).

Documentation Limitations: T-168 was excavated to a depth of 2.15 mbs and beneath the water table at 2.10 mbs. There were no factors that limited the documentation of T-168.

Stratigraphic Summary: The stratigraphy of T-168 consisted of fill strata overlying natural sediment to the base of excavation. Observed strata included asphalt (Ia), very gravelly coarse clayey sand (Ib), gravelly sandy loam (Ic), very gravelly sandy loam (Id), sandy clay (Ie), gravelly medium sand (If), extremely gravelly sand (Ig), fine sand (Ih), silty clay (Ii), natural loamy sand (II), and coarse sand (III and IV). The stratigraphy generally conformed to USDA soil survey designation of Fill land (FL).

Artifacts Discussion: See below.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: A total of two bulk sediment samples were collected from Stratum II including one sample between 1.45-1.53 mbs and one between 1.45-1.60 mbs. The samples were collected from the excavation floor and are not depicted in the stratigraphic profile map. Both of the bulk sediment samples were wet-screened.

The sample from Stratum II between 1.45-1.53 mbs contained charcoal (23.1 g), a kukui nut shell fragment (0.4 g), letal fragments (16.8 g), a small blue glass bead (0.1 g), a glass fragment (0.1 g), an unidentified medium mammal bone (1.6 g), an unidentified fish bone (0.3 g), and possible marine shell midden. The possible marine shell midden included Echinodermata *mathaei* sp./*diadema* sp. (3.0 g), Neritidae (2.4 g), Turbinidae *Turbo sandwicensis* (1.3 g), Neritidae *Nerita picea* (1.2 g), unidentified burned shell (1.0g), Tellinidae *Tellina palatam* (0.4 g), and crustacean (0.7 g).

The sample from Stratum II between 1.45-1.60 mbs contained charcoal (6.8 g), a burned kukui nut shell (0.2 g), a rusted metal nail (2.3 g), an unidentified fish bone (0.1 g), an unidentified medium mammal bone fragment (0.1 g), and possible marine shell midden. The possible marine shell midden included Neritidae *Nerita picea* (1.2 g), Isognomidae *Isognomon* sp. (0.1 g), Strombidae *Strombus* sp. (0.3 g), and crustacean (0.1 g).

The analysis of bulk sediment samples collected from Stratum II indicated the presence of traditional food refuse comprised of possible marine shell midden and fish bone. The sediment analysis also documented the presence of historic cultura material within Stratum II indicating possible historic modification of the buried A-horizon.

GPR Discussion: A review of amplitude slice maps indicated no linear features although a utility was encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-168 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.3 mbs. No utilities were observed in the profile however a metal pipe was encountered 1.49 mbs which was below the depth of clean signal return. The maximum depth of clean signal return was approximately 1.0 mbs.

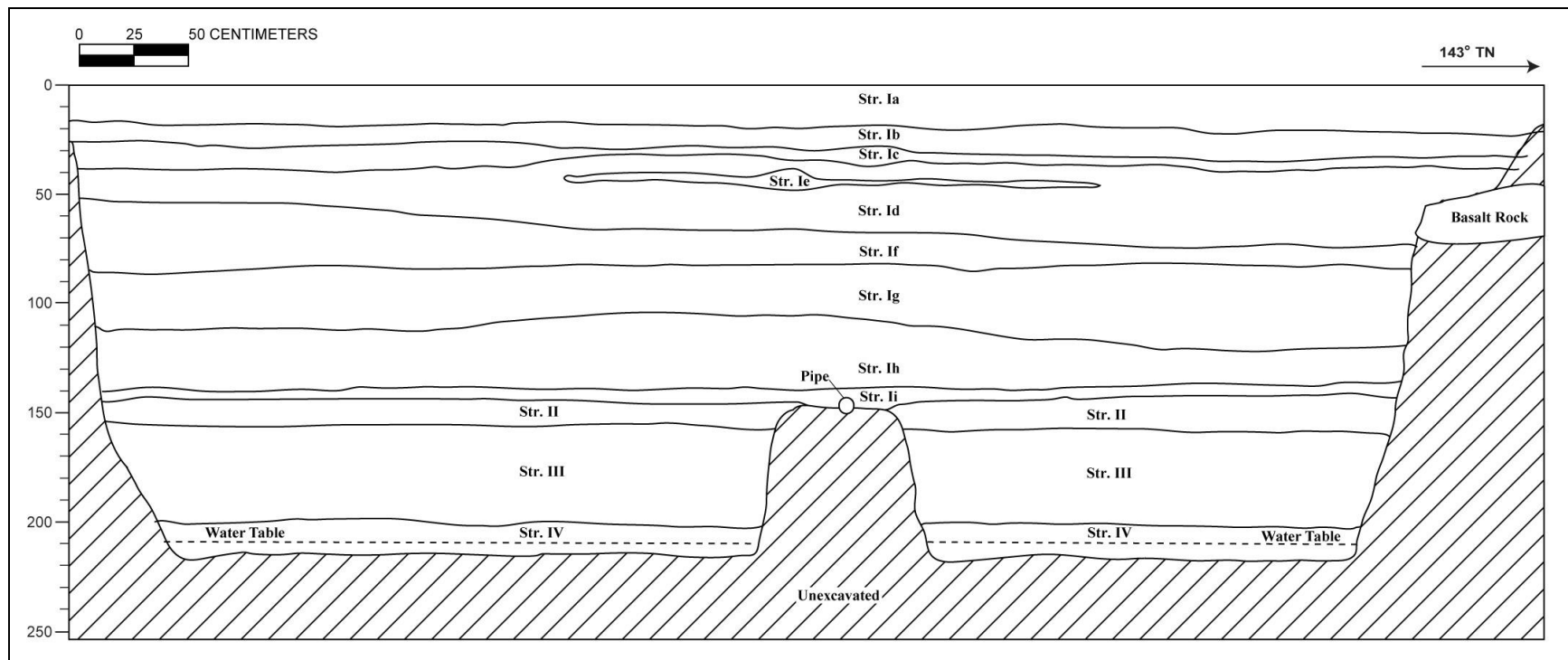
Summary: T-168 was excavated to a depth of 2.15 mbs and beneath the water table at 2.10 mbs. The stratigraphy of T-168 consisted of fill strata (Ia-Ii) overlying natural sediment (II-IV) to the base of excavation. The stratigraphy generally conformed to USDA soil survey designation of Fill land (FL A total of two bulk sediment samples were collected from Stratum II including one sample between 1.45-1.53 mbs and one between 1.45-1.60 mbs. The analysis of bulk sediment samples collected from Stratum II indicated the presence of traditional food refuse comprised of possible marine shell midden and fish bone. The sediment analysis also documented the presence of historic cultura material within Stratum II indicating possible historic modification of the buried A-horizon. Stratum II within T-168 is considered to be a component of SIHP# 50-80-14-7429 (see Volume I).



T-168 general location, view south



T-168 northeast wall profile, view north.



T-168 northeast wall profile

Trench T-168 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-20	Asphalt
Ib	17-31	Fill; 10 YR 8/3 (very pale brown); very gravelly, coarse clayey sand; structureless, single-grain; moist, firm consistency; slightly plastic; mixed origin; abrupt, smooth lower boundary; contained modern debris, rusted metal, wire with plastic insulation; crushed coral
Ic	27-41	Fill; 10 YR 4/3 (brown) with mottles of 10 YR 8/3 (very pale brown); gravelly, sandy loam; weak, medium, crumb structure; moist, friable consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; contained modern debris, glass, rusty metal
Id	32-73	Fill; 10 YR 5/2 (grayish brown) with mottles of 10 YR 8/3 (very pale brown); very gravelly sandy loam; weak, medium, crumb structure; moist, friable consistency; non-plastic; mixed origin; clear, smooth lower boundary; few, fine roots; contained modern, historic debris, glass, rusted metal, et al
Ie	40-45	Fill; 2.5 YR 3/4 (dark reddish brown); sandy clay; massive structure; moist, firm consistency; very plastic; mixed origin; abrupt, broken/discontinuous lower boundary; intrudes into Id
If	55-88	Fill; 10 YR 7/3 (very pale brown); gravelly medium sand; structureless, single-grain; moist, firm consistency; non-plastic; mixed origin; clear, smooth lower boundary; contains charcoal and historic trash
Ig	82-120	Fill; 2.5 Y 8/2 (pale yellow); extremely gravelly medium sand; structureless, single-grain; moist, firm consistency; non-plastic, marine origin; diffuse, smooth lower boundary; crushed coral fill
Ih	105-140	Fill; 2.5 Y 8/3 (pale yellow); fine sand; structureless, single-grain; moist, very friable consistency; non-plastic; marine origin; clear, smooth lower boundary; hydraulic fill sand
Ii	136-146	Fill; 2.5 Y 8/2 (pale yellow); silty clay; structureless, massive; moist, very friable; very plastic; mixed origin; clear, smooth lower boundary; fill deposit
II	142-159	Natural, 10 YR 3/1 (very dark gray); medium loamy sand; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; clear lower boundary; buried A-horizon; SIHP# 50-80-14-7429
III	156-202	Natural; 10 YR 7/3 (very pale brown); coarse sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; clear, smooth lower boundary; natural sand
IV	202-215	Natural; 10 YR 7/1 (light gray); coarse sand; structureless, single-grain; wet, non-sticky consistency; non-plastic; marine origin; lower boundary not visible; natural sand

4.14 Test Excavation 168A (T-168A)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:059
Elevation Above Sea Level:	2.15 m
UTM:	618818.3835 mE, 2355397.189 mN
Max Length/Width/Depth:	3.67 m / 0.88 m / 2.24 mbs
Orientation:	150 / 320° TN
Targeted Project Component:	Station Building
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 168A (T-168A) was located approximately 79.0 m southeast of Ward Avenue and Ilaniwai Street intersection, and was located within a parking lot. T-168A was an additional excavation added to further investigate and delineate the boundaries of the buried A-horizon (SIHP # 50-80-14-7429). T-168A also investigated a portion of the station building. T-168A was located on private property owned by Victoria Ward Ltd. The excavation surface was level with the surrounding land surface.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-168A was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-168A was located within marsh land called Kukuluao, 24.0 m northeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 33.0 m of T-168A. The roadway is also depicted on the 1887 Wall map of Honolulu along with three structures in the vicinity of T-168A. The structures were located approximately 97.0 m northwest, 51.0 m southwest, and 180.0 m southwest of T-168A. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of T-168A including a near-modern street grid with the closest intersection being Queen Street and Cummins Street 135.0 m southeast and the Cyclomere bicycle track 300.0 m north. Expanded urbanization in the vicinity of T-168A is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Few archaeological studies were conducted in the immediate vicinity of T-168A. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 175.0 m southeast of T-168A. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 300.0 m east of T-168A. No cultural resources were encountered (O'Leary and Hammatt 2006).

Documentation Limitations: T-168A was excavated to a depth of 2.24 mbs and beneath the water table at 2.02 mbs. T-168A was relocated from its original position due to the presence of a subsurface concrete jacket (see following T-168A plan view).

Stratigraphic Summary: The stratigraphy of T-168A consisted of fill strata overlying natural sediment to the base of excavation. Observed strata included asphalt (Ia), extremely gravelly sand fill (Ib), gravelly silty clay loam fill (Ic), clay loam fill (Id), very gravelly silty clay loam fill (Ie), gravelly silty clay loam fill (If), very gravelly sandy loam fill (Ig), gravelly sand fill (Ih) and sandy clay (Ii) overlying a sandy loam buried A-horizon (II) and Jaucas sand (III). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: No artifacts were observed.

Features Discussion: No Features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: A total of three bulk sediment samples were collected within T-168A including two samples from Stratum II between 1.40-1.45 mbs and between 1.40-1.53 mbs, and one sample from the Stratum II/III interface between 1.49-1.58 mbs. All of the bulk samples were wet-screened. Only small amounts of naturally-occurring, water-rounded marine shell were encountered within each bulk sediment sample.

GPR Discussion: A review of amplitude slice maps indicated no linear features although a concrete jacket was encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-168A identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.2 mbs. No utilities were observed in the profile although a concrete utility jacket was encountered during excavation. The maximum depth of clean signal return was approximately 1.0 mbs.

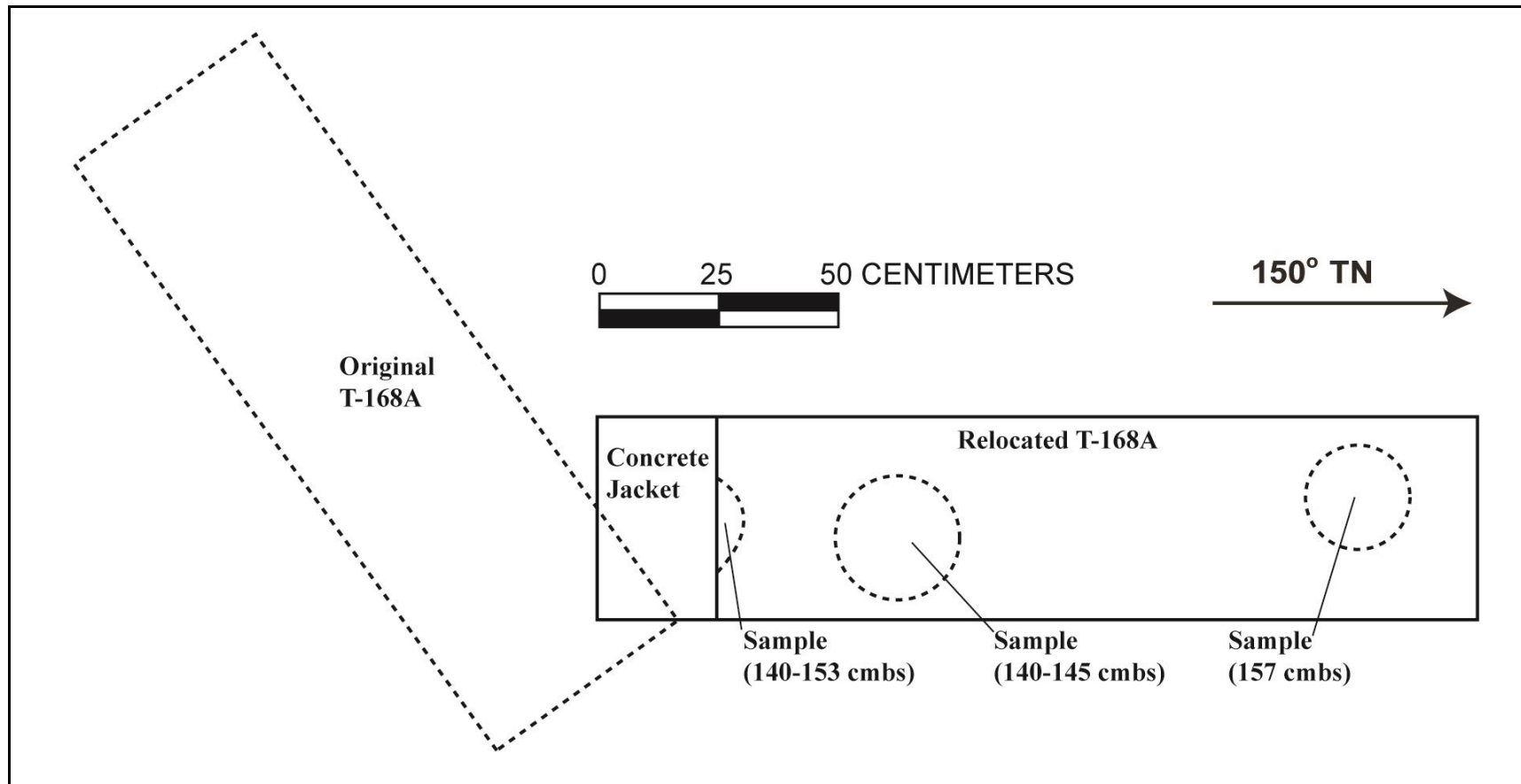
Summary: T-168A was excavated to a depth of 2.24 mbs, and beneath the water table at 2.02 mbs. The stratigraphy of T-168A consisted of fill strata (Ia-Ii) overlying natural sediment (II-III) to the coral shelf. The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). A total of three bulk sediment samples were collected within T-168A including two samples from Stratum II between 1.40-1.45 mbs and between 1.40-1.53 mbs, and one sample from the Stratum II/III interface between 1.49-1.58 mbs. Only small amounts of naturally-occurring, water-rounded marine shell were encountered within each bulk sediment sample. Stratum II within T-168A is considered to be a component of SIHP# 50-80-14-7429, a buried, culturally-enriched A-horizon. (see Volume I for further discussion on all cultural resources.)



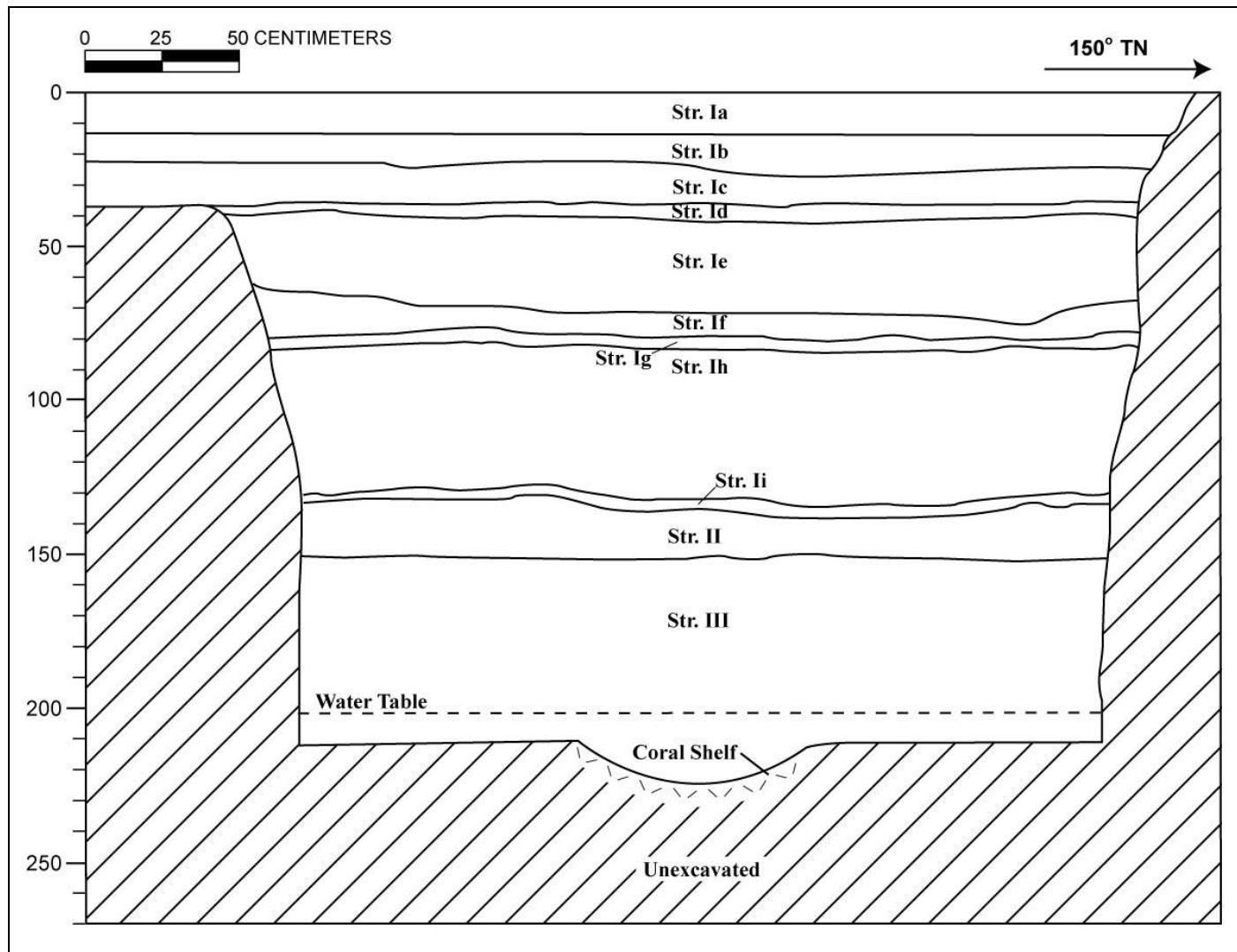
T-168A general location (view to south).



T-168A northeast profile wall, view to the east



T-168A plan view.



T-168A northeast wall profile

T-168A Stratigraphic Description of northeast wall.

Stratum	Depth (cmbs)	Description
Ia	0-14	Asphalt
Ib	14-29	Fill; 10 YR 7/4 (very pale brown); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; imported crushed coral fill
Ic	29-38	Fill; 10 YR 3/3 (dark brown); gravelly silty clay loam; fine, crumb structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; basalt boulders
Id	38-45	Fill; 5 YR 3/3 (dark reddish brown); clay loam; fine, blocky structure; moist, firm consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary
Ie	45-75	Fill; 10 YR 4/1 (dark gray); very gravelly silty clay loam; fine, crumb structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary
If	75-82	Fill; 10 YR 4/3 (brown); gravelly silty clay loam; fine, crumb structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary
Ig	81-85	Fill; 10 YR 4/1 (dark gray); very gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; abrupt, smooth lower boundary
Ih	85-135	Fill; 10 YR 8/2 (very pale brown); gravelly sand; structureless, single-grain; moist, friable consistency; non-plastic; marine origin; abrupt, smooth lower boundary
Ii	135-140	Fill; 10 YR 8/2 (very pale brown); sandy clay; moderate, fine, blocky structure; moist, friable consistency; slightly plastic; mixed origin; abrupt, smooth lower boundary
II	140-153	Natural; 10 YR 5/1 (gray); sandy loam; structureless, single-grain; wet, non-sticky consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; buried A-horizon; contained small marine shells
III	153-224	Natural; 10 YR 8/3 (very pale brown); sand; structureless, single-grain; wet, non-sticky consistency; non-plastic; marine origin; lower boundary not visible; Jaucas sand

4.15 Test Excavation 168B (T-168B)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:059
Elevation Above Sea Level:	2.1 m
UTM:	618824.6557 mE, 2355394.323 mN
Max Length/Width/Depth:	6.2 m / 0.78 m / 2.05 m
Orientation:	108 / 288° TN
Targeted Project Component:	Station Building
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 168B (T-168B) was located within the level parking lot area paralleling Ward Avenue. T-168B was an additional excavation added to further investigate and delineate the boundries of the buried A-horizon (SIHP# 50-80-14-7429). T-168B also investigated a portion of the station building. T-168B was located on private property. T-168B was relocated approximately 0.8 m to the north and a sewer line was located 11 m southeast. The excavation surface was level with the surrounding land surface.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-168B was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-168B was located within marsh land called Kukuluaeo, 24.0 m northeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 33.0 m of T-168B. The roadway is also depicted on the 1887 Wall map of Honolulu along with three structures in the vicinity of T-168B. The structures were located approximately 97.0 m northwest, 51.0 m southwest, and 180.0 m southwest of T-168B. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of T-168B including a near-modern street grid with the closest intersection being Queen Street and Cummins Street 135.0 m southeast and the Cyclomere bicycle track 300.0 m north. Expanded urbanization in the vicinity of T-168B is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Few archaeological studies were conducted in the immediate vicinity of T-168B. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 175.0 m southeast of T-168B. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 300.0 m east of T-168B. No cultural resources were encountered (O'Leary and Hammatt 2006).

Documentation Limitations: T-168B was excavated to the coral shelf at a depth of 2.10 mbs and beneath the water table at 1.95 mbs. There were no factors that limited the excavation of T-168B.

Stratigraphic Summary: The stratigraphy at T-168B consisted of fill overlying natural sediment. Observed strata consisted of asphalt (Ia), very gravelly sand fill (Ib), sandy clay loam fill (Ic), and very gravelly sand fill (Id) overlying a loamy sand buried A-horizon (II), Jaucas sand (III). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: A total of four artifacts (Acc. # 168B-A-1 to A-4) were collected from Stratum Ic at 0.73 mbs. The artifacts included one glass bottle fragment; one machine cut tile, one marble, and a bone toothbrush handle. The glass bottle fragment was dated 1911-1929, which indicates that the material was deposited within the early twentieth century.

Features Discussion: One feature (Feature 5) was identified within Stratum II of T-168B and was designated as a feature of SIHP# 50-80-14-7429.

SIHP# -7429 Feature 5 originated at 1.6 mbs and terminated at 1.65 mbs. Feature 5 was oval-shaped and measured 0.12 m wide by more than 0.25 m long, extending into one excavation sidewall. A bulk sediment sample was collected from Feature 5 (see Sample Results below). SIHP# -7429 Feature 5 was considered to be a pit of indeterminate function. The presence of large metal fragments and historically-introduced Conifer charcoal within Feature 5 (see Sample Results below) indicated that the feature may have been disturbed by or deposited during the post-Contact period. The large quantity of charcoal within Feature 5 (43.2 g, see Sample Results below) and Stratum II (123.4 g) may indicate an association of the feature and stratum with a burn event.

Terrestrial Faunal Remains Collected During Excavation: The faunal remains collected individually during excavation from Stratum II (1.40-1.45 mbs) consisted of *Sus scrofa* and *Bos taurus* skeletal elements. A *Bos taurus* rib was butchered with a metal blade, indicating an historic origin. These remains are part of the culturally enriched A-horizon component (Stratum II) of SIHP# 50-80-14-7429.

Sample Results: Two bulk samples were collected from within T-168B including one sample from Stratum II between 1.40-1.45 mbs and one sample from SIHP# 7429 Feature 5 between 1.60-1.65 mbs. Both bulk samples were wet-screened.

The sample from Stratum II (1.40-1.45mbs) contained charcoal (123.4 g), large rusted metal fragments (84.5 g), bottle glass fragments (1.3 g), an unidentified fish bone (0.4 g), an unidentified medium mammal bone fragment (0.2 g), and possible marine shell midden. The possible marine shell midden included Neritidae *Nerita picea* (9.6 g), possible burned cf. Strombidae (1.4 g), Strombidae *Strombus* sp. (1.1 g), crustacean (0.9 g), possible burned crustacean (0.5 g), Turbinidae *Turbo* sp. (0.8 g), Echinodermata *mathaei* sp. (0.4 g), Mytilidae *Brachidontes crebristriatus* (0.1 g), Tellinidae *Tellina palatam* (0.1 g), and Trochidae *Trochus* sp. (0.1 g).

The bulk sample from SIHP# 7429 Feature 5 (1.6-1.65 mbs) contained charcoal (43.2g), rusted metal (3.0g), a rat (*Rattus* sp.) bone (0.1g), fire-cracked rock (43.1g), and possible marine shell midden. The possible marine shell midden included crustacean (1.6 g), Neritidae *Nerita picea*

(1.5 g), Isognomidae *Isognomon* sp. (1.4 g), Echinodermata (0.2 g), Lucinidae *Ctena bella* (0.1 g), Mytilidae *Brachidontes crebristriatus* (0.1 g), and Strombidae *Strombus* sp. (0.5 g). The charcoal collected from Feature 5 was submitted for wood taxa identification. Wood taxa analysis identified cf. *Metrosideros polymorpha* ('Ōhi'a lehua), a native tree, and conifer (pine, fir, etc.), a historically-introduced tree.

The results of sample analysis documented a large amount of charcoal and the presence of historic material within Stratum II and SIHP# -7429 Feature 5. The presence of large metal fragments and historically-introduced Conifer charcoal within Feature 5 indicated that the feature may have been disturbed by or deposited during the post-Contact period. The large quantity of charcoal within Feature 5 (43.2 g) and Stratum II (123.4 g) may indicate an association of the feature and stratum with a burn event.

GPR Discussion: A review of amplitude slice maps indicated no linear features although an abandoned metal utility line was encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-168B identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.35 mbs. No utilities were observed in this profile although an abandoned utility was encountered below the clean signal return. The maximum depth of clean signal return was approximately 1.0 mbs.

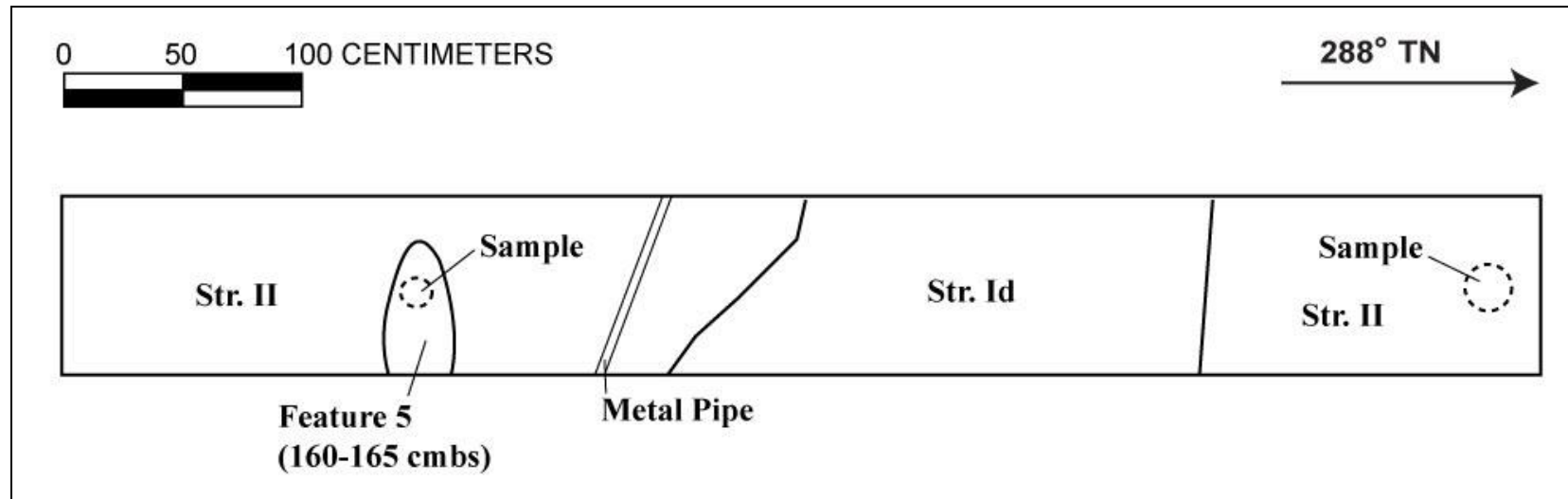
Summary: T-168B was excavated to the coral shelf at a depth of 2.10 mbs and beneath the water table at 1.95 mbs. The stratigraphy at T-168B consisted of fill (Ia-Id) overlying natural sediment (II-III). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). A total of four artifacts (Acc. # 168B-A-1 to A-4) were collected from Stratum Ic at 0.73 mbs. The artifacts included one glass bottle fragment; one machine cut tile, one marble, and a bone toothbrush handle. The glass bottle fragment was dated 1911-1929, which indicates that the material was deposited within the early twentieth century. One feature (Feature 5) was identified originating from Stratum II within T-168B. SIHP# -7429 Feature 5 was considered to be a pit of indeterminate function. The faunal remains collected individually during excavation from Stratum II (1.40-1.45 mbs) consisted of *Sus scrofa* and *Bos taurus* skeletal elements. A *Bos taurus* rib was butchered with a metal blade, indicating an historic origin. These remains are part of the culturally enriched A-horizon component (Stratum II) of SIHP# 50-80-14-7429. A total of two bulk samples were collected from within T-168B including one sample from Stratum II between 1.40-1.45 mbs and one sample from SIHP# 7429 Feature 5 between 1.60-1.65 mbs. The results of sample analysis documented a large amount of charcoal and the presence of historic material within Stratum II and SIHP# -7429 Feature 5. The presence of large metal fragments and historically-introduced conifer charcoal within Feature 5 indicated that the feature may have been disturbed by or deposited during the post-Contact period. The large quantity of charcoal within Feature 5 (43.2 g) and Stratum II (123.4 g) may indicate an association of the feature and stratum with a burn event. Stratum II and one associated feature (Feature 5) within T-168B are considered to be components of SIHP# 50-80-14-7429, described in Volume I.



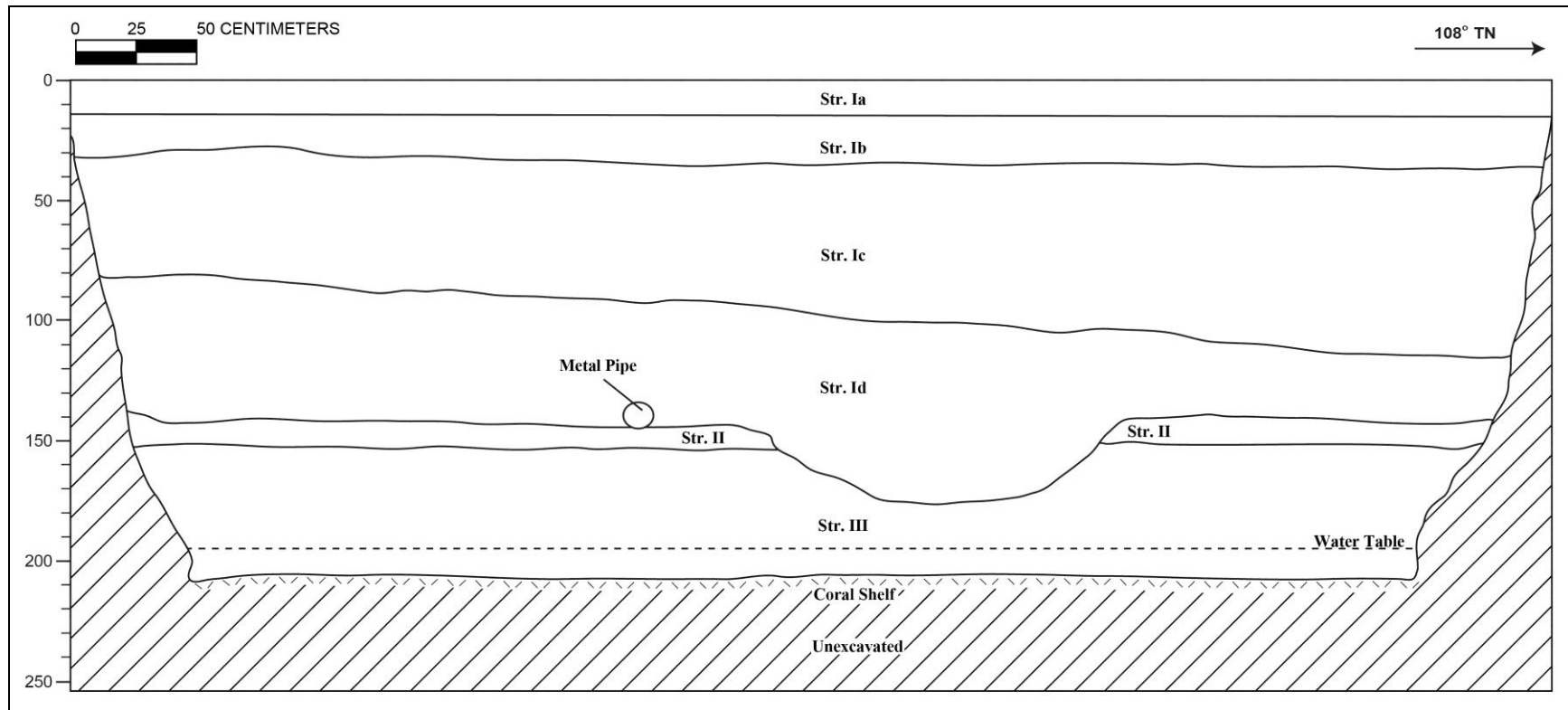
T-168B general location (view to west).



T-168B north profile wall (view to west).



T-168B plan view.



T-168B north wall.

T-168B Stratigraphic Description of north wall.

Stratum	Depth (cmbs)	Description
Ia	0-13	Asphalt
Ib	13-30	Fill; 10 YR 8/2 (very pale brown); very gravelly sand; moderate, coarse, blocky, crumb structure; dry, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crush coral fill
Ic	30-115	Fill; 10 YR 3/2 (very dark grayish brown); sandy clay loam; medium, crumb structure; moist, loose to very friable consistency; slightly plastic; mixed origin; clear, smooth lower boundary; contained metal, marble, glass bottle, wood fragment, porcelain insulators, observed but not collected; sandy clay loam fill
Id	80-140	Fill; 10 YR 8/2 (very pale brown); very gravelly sand; weak, medium, granular structure; dry, loose consistency; non-plastic; marine origin; clear, smooth lower boundary; coral gravel to cobbles
II	140-151	Natural; 10 YR 2/1 (black); loamy sand; weak, fine-medium, granular-crumb structure; moist, loose consistency; non-plastic; mixed origin; abrupt, smooth-wavy lower boundary; contained abundant charcoal and faunal remains, contained Feature 5, charcoal flecking, urchin, crustaceans; buried A-horizon; component of SIHP# 50-80-14-7429
III	151-210	Natural; 10 YR 7/3 (very pale brown); sand; weak, medium-coarse, granular structure; moist, loose, non-sticky consistency; non-plastic; marine origin; lower boundary not visible;

4.16 Test Excavation 169 (T-169)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:059
Elevation Above Sea Level:	2.05 m
UTM:	618836.4813 m E / 2355392.309 m N
Max Length / Width / Depth:	3.72 m / 0.90 m / 1.89 m
Orientation:	48 / 228° TN
Targeted Project Component:	Station Column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 169 (T-169) was located in a parking lot on the eastern side of the current building, approximately 80.0 m southeast of Ward Avenue and near the Queen Street intersection. Existing utilities near T-169 included a parallel sewer line approximately 1.6 m to the northwest and a parallel drain line approximately 7.6 m to the southeast. T-169 was located on private property owned by Victoria Ward Ltd. The excavation area was level with the surrounding land surface.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-169 was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-169 was located within marsh land called Kukuluao, 29.0 m northeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 21.0 m of T-169. The roadway is also depicted on the 1887 Wall map of Honolulu along with three structures in the vicinity of T-169. The structures were located approximately 111.0 m northwest, 58.0 m southwest, and 190.0 m southwest of T-169. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of T-169 including a near-modern street grid with the closest intersection being Queen Street and Cummins Street 121.0 m southeast and the Cyclomere bicycle track 300.0 m north. Expanded urbanization in the vicinity of T-169 is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Few archaeological studies were conducted in the immediate vicinity of T-169. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 165.0 m southeast of T-169. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 300.0 m east of T-169. No cultural resources were encountered (O'Leary and Hammatt 2006).

Documentation Limitations: T-169 was excavated to a depth of 1.89 mbs. Excavation was ceased prior to the water table due to safety concerns of collapsing sidewalls during hand excavation. Excavation was limited by two utility lines that were encountered. A backhoe was used to remove the upper fill strata and expose the buried A-horizon. All of the natural sediment within T-169 was hand-excavated to the base depth.

Stratigraphic Summary: The stratigraphy of T-169 consisted of fill strata overlying natural sediment to the base of excavation. Observed strata included asphalt (Ia), very gravelly silty sand (Ib), gravelly sandy clay loam fill (Ic), gravelly clay loam fill (Id), gravelly loamy sand fill (Ie), gravelly sand fill (If), and clay fill (Ig), overlying natural coarse sand (II), and natural very coarse sand (III). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). Stratum II was designated as a component of SIHP# 50-80-14-7429, a culturally enriched subsurface A-horizon.

Artifacts Discussion: A total of six artifacts (Acc. # 169-A-1 to A-6) were collected from T-169. One asphalt fragment was collected from 0.76 mbs. Four marbles were collected from Stratum II at 1.36 mbs. One marble was made out of the glass and the other three were made out of clay. A piece of worked glass was also collected from Stratum II at 1.47 mbs. It had no datable attributes.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: The remains of several species were collected individually during excavation within Stratum II of T-169. A sample from 1.44 mbs included *Bos taurus*, medium mammal (possible *Ovis aries*), and *Canis lupus familiaris*; and a sample from between 1.44 and 1.54 mbs contained medium mammal (possible *Felis catus* or *Canis lupus familiaris*) and *Canis lupus familiaris*. The *Bos taurus* fragment had been butchered with a metal blade, indicating an historic origin (not traditional Hawaiian); the other bones showed no evidence of cultural modification. These remains are part of the buried A-horizon (Stratum II) of SIHP# 50-80-14-7429.

Sample Results: Two bulk sediment samples and one screened sample were collected from Stratum II (buried A-horizon) for further content analysis. A 4-liter bulk sediment sample from 1.34 mbs to 1.44 mbs yielded charcoal (9.7 g), shell midden material (9.7 g), naturally-deposited marine shell (3.0 g), burned *kukui* nut (0.1 g), corroded metal pieces and a metal pin in wood (71.2 g), medium mammal remains (1.8 g), and a long bone fragment from a rat (*Rattus sp.*) (0.1 g). The shell midden material was identified as Echinodermata *diadema sp./mathaei sp.* (4.8 g), Neritidae (*Nerita picea*) (3.7 g), Tellinidae (*Tellina palatam*) (0.5 g), Nacellidae (*Cellana sandwicensis*) (0.4 g), and crustacean (0.3 g).

A 4.0-liter bulk sediment sample from 1.44 mbs to 1.54 mbs yielded contained charcoal (0.1 g), naturally-deposited shell (3.7 g), a corroded metal fragment (0.2 g), bird (*Aves*) bone (0.1 g) and fish bone (0.1 g).

A 24.5-liter screened sample from Stratum II, between 1.44 mbs to 1.54 mbs, yielded historic metal (58.8 g) and glass fragments (3.3 g). The results of sample analysis indicate the presence of historic artifacts and terrestrial and marine shell content within Stratum II, which was considered to be a component of SIHP# 50-80-14-7429, a culturally-enriched sand A-horizon.

GPR Discussion: A review of amplitude slice maps indicated no linear features although two utilities were encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.75 mbs.

GPR depth profiles for T-169 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.4 mbs. No utilities were observed in the profile although two metal utility pipes were encountered during excavation. The maximum depth of clean signal return was approximately 1.0 mbs.

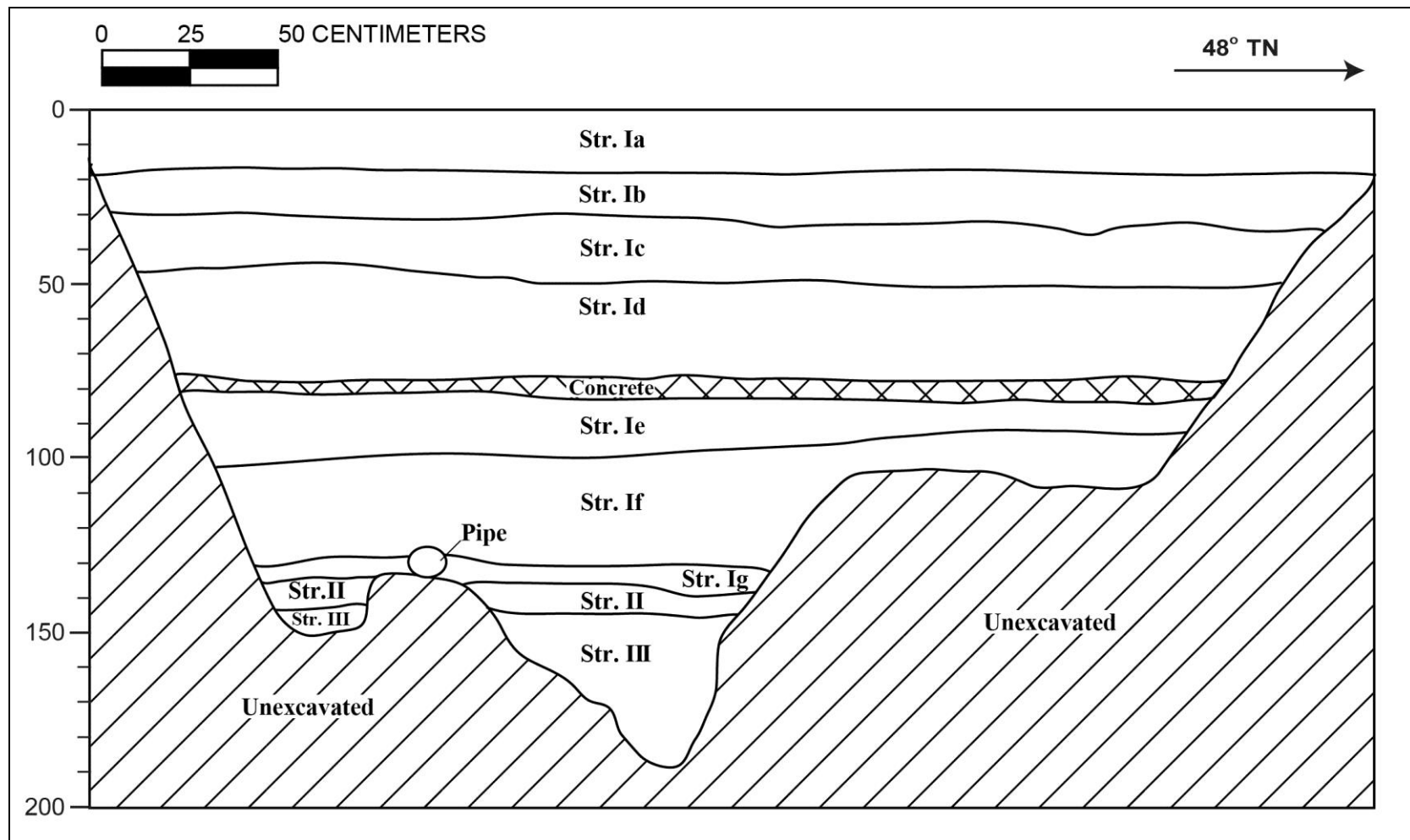
Summary: T-169 was excavated to a depth of 1.89 mbs. The stratigraphy of T-169 consisted of fill strata (Ia-Ig) overlying a buried cultural A-horizon (II/SIHP# 50-80-14-7429) and natural sediment (III) to the base of excavation. The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). The faunal remains collected from Stratum II are considered to be associated with components of a culturally enriched buried A-horizon (SIHP# 50-80-14-7429). The results of sample analysis indicated the presence of historic artifacts and terrestrial and marine shell content within Stratum II, which was designated a component of SIHP# 50-80-14-7429, a culturally-enriched sand A-horizon.



T-169 general location, view to east



T-169 northwest wall, view to west



T-169 northwest wall profile

T-169 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-18	Asphalt
Ib	18-34	Fill; 10 YR 8/2 (very pale brown); very gravelly silty sand, structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral base course fill
Ic	30-50	Fill; 7.5 YR 3/3 (dark brown); gravelly sandy clay loam; medium, crumb structure; moist, very friable consistency; slightly plastic; mixed origin; abrupt, smooth lower boundary; coral gravel sandy clay loam
Id	45-76	Fill; 10 YR 6/2; (light brownish gray); gravelly clay loam, medium, crumb structure; moist, very friable consistency; slightly plastic; mixed origin; abrupt, smooth lower boundary; coral cobbles with sandy clay loam
Ie	82-103	Fill; 5 YR 3/3; (dark reddish brown); gravelly loamy sand; structureless, single-grain; moist, loose to very friable consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; loamy sand with coral cobbles; contained historic glass and metal fragments
If	90-133	Fill; 7.5 YR 8/2 (pinkish white); gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; clear, smooth lower boundary; with coral cobbles and gravels
Ig	129-138	Fill; 10 YR 8/1; (white); clay; weak, fine, blocky structure; moist, firm, consistency; plastic; marine origin; abrupt, smooth lower boundary; few, fine roots; hydraulic fill
II	135-144	Natural, 10 YR 3/2; (very dark grayish brown); coarse sand; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; diffuse, smooth lower boundary; contained charcoal flecking, shell midden and historic materials, cut faunal, glass and metal fragments; former A-horizon
III	144-189	Natural; 10 YR 7/4; (very pale brown); very coarse sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; natural marine sand

T-169 Terrestrial vertebrate material collected individually during excavation

Acc. #	Stratum	Depth(cmbs)	Feature	Family/Class	Species	Element	Description	Modification
169-F-1	II	144	-	Bovidae	<i>Bos taurus</i>	Tibia diaphysis section	Fragment	Butchered (cut with metal blade)
169-F-2	II	144	-	Mammalia	Medium mammal (possible <i>Ovis aries</i>)	Vertebra; Tibia (distal portion); Epiphysis; Irregular bone fragments	Fragments	None
169-F-3	II	144	-	Canidae (dog)	<i>Canis lupus familiaris</i>	Vertebra	Fragment	None
169-F-4	II	144-154	-	Mammalia	Medium mammal (possible <i>Felis catus</i> or <i>Canis lupus familiaris</i>)	Metatarsus (possible, pieces mend)	Fragment	None
169-F-5	II	144-145	-	Canidae (dog)	<i>Canis lupus familiaris</i>	Cervical vertebra; Ulna; Irregular bones	Fragments	None

4.17 Test Excavation 170 (T-170)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:059
Elevation Above Sea Level:	1.48 m
UTM:	618864.7858 mE, 2355380.988 mN
Max Length / Width / Depth:	3.74 m / 0.93 m / 1.16 m
Orientation:	230 / 50° TN
Targeted Project Component:	Guideway Column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 170 (T-170) was located in the thruway of a parking lot, approximately 60.0 m southwest of Queen Street, east of Ward Avenue. There were no existing utilities in the immediate vicinity. T-170 was located on private property owned by Victoria Ward, Ltd. The excavation area was level with the surrounding land surface.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-170 was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-170 was located within marsh land called Kukuluao, 60.0 m east of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 8.0 m of T-170. The roadway is also depicted on the 1887 Wall map of Honolulu along with three structures in the vicinity of T-170. The structures were located approximately 140.0 m northwest, 75.0 m southwest, and 210.0 m southwest of T-170. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of T-170 including a near-modern street grid with the closest intersection being Queen Street and Cummins Street 90.0 m southeast and the Cyclomere bicycle track 315.0 m north. Expanded urbanization in the vicinity of T-170 is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Few archaeological studies were conducted in the immediate vicinity of T-170. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 140.0 m southeast of T-170. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 280.0 m east of T-170. No cultural resources were encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which was located approximately 178.0 m southeast of T-170. Portions of

a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011).

Documentation Limitations: T-170 was excavated to a depth of 1.16 mbs and beneath the water table at 1.14 mbs. A backhoe was used to remove the upper fill strata and expose the underlying natural sediment. All of the natural sediment within T-170 was hand-excavated to below the water table. Human remains (Feature 6) were discovered during the collection of a bulk sample from the sidewall. No further work was conducted following the discovery and the bulk sediment sample was replaced within the excavation area of T-170.

Stratigraphic Summary: The stratigraphy of T-170 consisted of fill strata overlying natural sediment to the base of excavation. Observed strata included asphalt (Ia), very gravelly sandy loam (Ib), extremely gravelly sand (Ic), and very fine sand fill (Id), overlying a natural silty coarse sand buried A-horizon (II), natural medium to coarse sand (III), natural loamy sand (IV), and natural coarse sand (V). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). Stratum II contained a human cranial fragment and was considered to be a component of SIHP# 50-80-14-7429, a culturally enriched sand A-horizon.

Artifacts Discussion: No artifacts were observed.

Features Discussion: Human remains were encountered within Stratum II and designated as Feature 6 of SIHP# 50-80-14-7429, a culturally enriched sand A-horizon. The human remains were found at a depth of 0.65 to 0.71 mbs. The discovery was made while attempting to collect a bulk sediment sample from the southeast sidewall. The remains were identified as a fragmented left temporal portion including the mastoid process and the root of the zygomatic arch. The mastoid process was noted as appearing relatively small and gracile, possibly indicating a female or young adult individual. Exposure of the human remains was limited and the find was left *in situ* and covered. No estimation of age or ancestry was provided. The human cranial fragment was an isolated find. No further work was conducted following the inadvertent discovery, and the bulk sediment sample that was in the process of being collected was replaced within the excavation area of T-170.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: No sample analysis was conducted.

GPR Discussion: A review of amplitude slice maps indicated no linear features which might indicate the presence of utilities. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-170 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.3 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.3 mbs.

Summary: T-170 was excavated to a depth of 1.16 mbs in natural sediment and beneath the water table at 1.14 mbs. The stratigraphy of T-170 consisted of fill strata (Ia-Id) overlying a

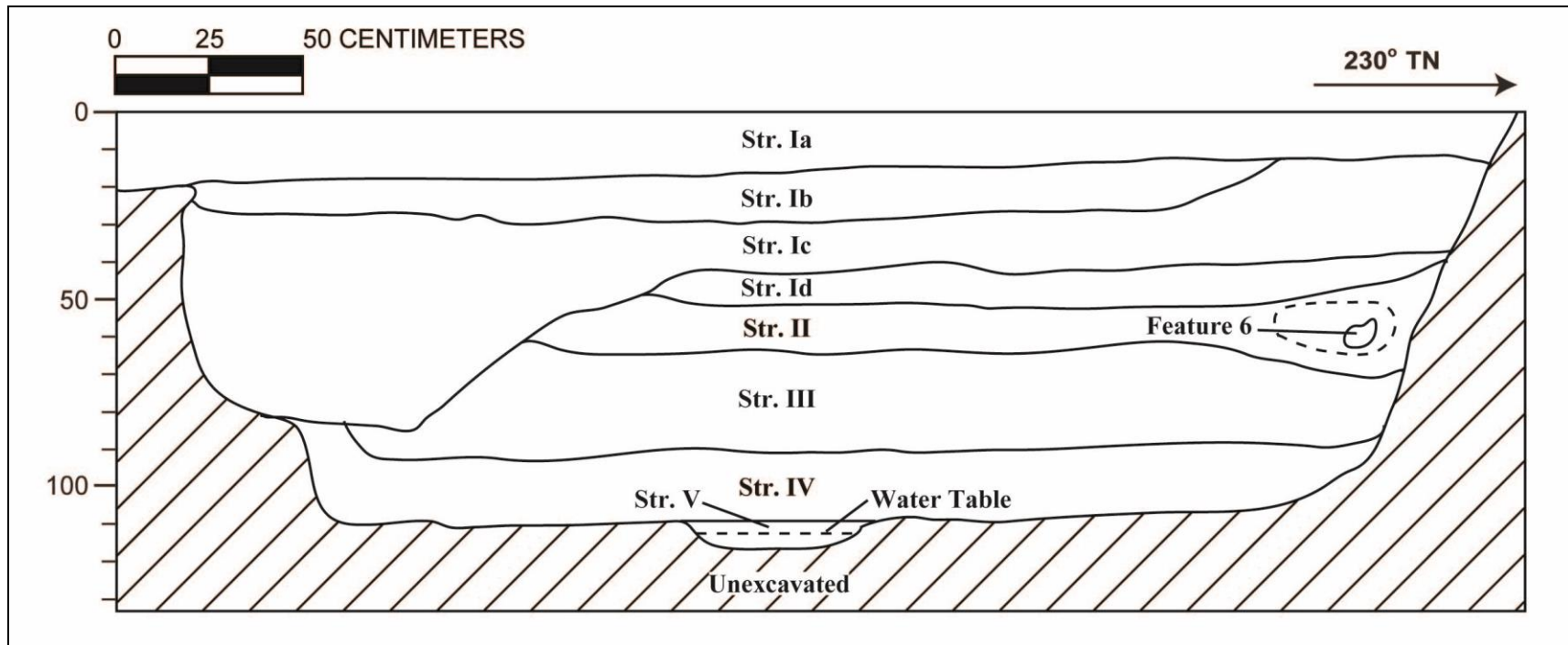
buried cultural A-horizon (II) and natural sediment (III-V) to the base of excavation. Human skeletal remains consisting of an isolated left temporal portion were encountered in Stratum II. The buried A-horizon (II) containing human skeletal remains (Feature 6) was designated as a component of SIHP# 50-80-14-7429, a culturally enriched sand A-horizon. A detailed summary of SIHP# 50-80-14-7429 is provided in Volume I.



T-170 general location, view to south



T-170 overview of southeast profile, view to south (prior to discovery of human skeletal remains)



T-170 southeast wall profile showing SIHP# -7429 Feature 6 (human skeletal remains)

T-170 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-16	Asphalt
Ib	16-28	Fill; 10 YR 3/2 (very dark grayish brown); very gravelly sandy loam; weak, fine, crumb structure; very friable, weak consistency; non-plastic; terrigenous origin; abrupt, discontinuous lower boundary; basalt base course
Ic	28-84	Fill; 10 YR 8/2 (very pale brown); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, irregular lower boundary; crushed coral fill
Id	41-54	Fill; 10 YR 7/2 (light gray); very fine sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, discontinuous lower boundary
II	41-75	Natural; Buried A-horizon; 10 YR 3/2 (very dark grayish brown); coarse silty sand; structureless, single-grain; moist, loose consistency; non-plastic; mixed origins; diffuse, discontinuous lower boundary; SIHP# 50-80-14-7429; contained human left temporal bone portion;
III	61-95	Natural; 10 YR 7/4 (very pale brown); medium to coarse grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; diffuse, discontinuous lower boundary; natural Jaucas sand
IV	80-110	Natural; 10 YR 6/4 (light yellowish brown); loamy sand; structureless single-grain; moist, loose consistency; non-plastic; marine origin; clear, discontinuous lower boundary; natural Jaucas san
V	110-116	Natural; GLEY 1 5GY 7/1 (light greenish gray); coarse sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; natural marine sand

4.18 Test Excavation 170A (T-170A)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:059
Elevation Above Sea Level:	1.5 m
UTM:	618863.8872 m E / 2355381.637 m N
Max Length / Width / Depth:	2.8 m / 1.23 m / 1.28 m
Orientation:	49 / 229° TN
Targeted Project Component:	Guideway Column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 170A (T-170A) was located in the thruway of a parking lot, approximately 60.0 m southwest of Queen Street, east of Ward Avenue. T-170A was an additional excavation added to increase testing coverage area for the redesign and slight relocation of the guideway column tested by the original T-170. T-170A also further investigated cultural material associated with the buried A-horizon (SIHP #50-80-14-7429) identified in T-170. T-170A was located on private property owned by Victoria Ward, Ltd. The location of T-170A was directly parallel to T-170, along the northwest side. There were no existing utilities in the immediate vicinity. The excavation area was level with the surrounding land surface.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-170A was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-170A was located within marsh land called Kukuluaeo, 60.0 m east of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 8.0 m of T-170A. The roadway is also depicted on the 1887 Wall map of Honolulu along with three structures in the vicinity of T-170A. The structures were located approximately 140.0 m northwest, 75.0 m southwest, and 210.0 m southwest of T-170A. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of T-170A including a near-modern street grid with the closest intersection being Queen Street and Cummins Street 90.0 m southeast and the Cyclomere bicycle track 315.0 m north. Expanded urbanization in the vicinity of T-170A is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Few archaeological studies were conducted in the immediate vicinity of T-170A. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 140.0 m southeast of T-170A. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2005, CSH conducted an archaeological inventory survey for the Moana

Vista Project on Kapi'olani Boulevard, located approximately 280.0 m east of T-170A. No cultural resources were encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which was located approximately 178 m southeast of T-170A. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011).

Documentation Limitations: T-170A was excavated to a depth of 1.28 mbs and beneath the water table at 1.24 mbs. There were no specific factors that limited documentation of T-170A. A backhoe was used to remove the upper fill strata and expose the underlying natural sediment. All of the natural sediment within T-170A was hand-excavated to below the water table.

Stratigraphic Summary: The stratigraphy of T-170A consisted of fill strata overlying natural sediment. Observed strata included asphalt (Ia), very gravelly loam (Ib), extremely gravelly sand (Ic), very fine sand fill (Id), overlying natural silty sand (II), natural medium to coarse sand (III), and natural coarse sand (IV). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). Stratum II was considered to be a component of SIHP# 50-80-14-7429, a culturally enriched sand A-horizon.

Artifacts Discussion: See below.

Features Discussion: One feature (Feature 7) was identified within Stratum II of T-170A and was designated as a feature of SIHP# 50-80-14-7429.

SIHP# -7429 Feature 7 was identified in plan within Stratum II at 0.56 mbs and terminated at 0.60 mbs. The feature was rectangular-shaped with a maximum length of 0.35 m and a width of 0.25 m. Feature 7 was interpreted as a pit of indeterminate function, and was considered to be a component of SIHP# 50-80-14-7429.

Terrestrial Faunal Remains Collected During Excavation: Faunal remains were collected individually during excavation from Stratum II (0.56-0.6 mbs) of T-170A. These consisted of a *Canis lupus familiaris* proximal phalanx; Diaphysis sections from a *Rattus sp.*; and a vertebra and irregular bone from a medium mammal. The medium mammal vertebra had been butchered with a metal blade, indicating an historic origin (not traditional Hawaiian); the other bones showed no evidence of cultural modification. These remains are a component of the culturally enriched buried A-horizon (Stratum II).

Sample Results: A total of two sediment samples were collected from within T-170A including one bulk sediment sample from Stratum II between 0.56-0.60 mbs (11.0 L) and the contents of one screened sample from SIHP# -7429 Feature 7 between 0.56-0.60 mbs (2.0 L). The bulk sediment sample and the contents of the screened sample were both wet-screened.

The 11-liter bulk sediment sample from Stratum II (0.56-0.60 mbs) yielded charcoal (0.5 g), shell midden material (4.0 g), naturally-occurring shell material (1.2 g), a white historic ceramic fragment (1.3 g), corroded metal fragments (1.1 g), a bottle glass fragment (0.5 g), medium mammal remains (0.2 g), fish bone (0.4 g) and fire-cracked rock (55.6 g). The shell midden material was classified as Neritidae (*Nerita picea*) (3.8 g) and Echinodermata *diadema sp./mathaei sp.* (0.2 g).

The 2-liter screened sample from SIHP# -7429 Feature 7 yielded shell midden (13.5 g), bottle glass fragments (0.3 g), a fish spine (0.1 g), and fire-cracked rock (25.8 g). The shell midden material was classified as Strombidae (*Strombus sp.*) (8.5 g), Neritidae (*Nerita picea*) (2.6 g), Naticidae (*Natica sp.*) (burned) (2.0 g), burned crustacean (0.3 g), Isognomidae (*Isognomon sp.*) (0.1 g). Additional faunal remains were encountered within the screened sample from Feature 7, and included material from a dog (*Canis lupus familiaris*), rat (*Rattus sp.*), and unknown medium mammal, not consistent with human.

The results of sample analysis documented the presence of traditional food refuse including marine shell midden and historic artifacts within Stratum II and SIHP# -7420 Feature 7. The presence of historic material may indicate disturbance or deposition during the post-Contact period.

GPR Discussion: A review of amplitude slice maps indicated no linear features which might indicate the presence of utilities. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.25 mbs.

GPR depth profiles for T-170A identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.25 mbs and again around 0.5 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.2 mbs.

Summary: T-170A was excavated to a depth of 1.28 mbs in natural sediment and beneath the water table at 1.24 mbs. The stratigraphy of T-170A consisted of fill strata (Ia-Id) overlying a culturally-enriched buried A-horizon (II) and natural sediment (III-IV). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). Faunal remains were collected during excavation and were considered to be a component of the culturally-enriched buried A-horizon (Stratum II). A total of two sediment samples were collected from within T-170A including one bulk sediment sample from Stratum II between 0.56-0.60 mbs (11.0 L) and the contents of one screened sample from SIHP# -7429 Feature 7 between 0.56-0.60 mbs (2.0 L). The results of sample analysis documented the presence of traditional food refuse including marine shell midden and historic artifacts within Stratum II and SIHP# -7420 Feature 7. The presence of historic material may indicate disturbance or deposition during the post-Contact period. Stratum II and one associated feature (Feature 7) within T-170A were considered to be components of SIHP# 50-80-14-7429, a culturally-enriched buried A-horizon.



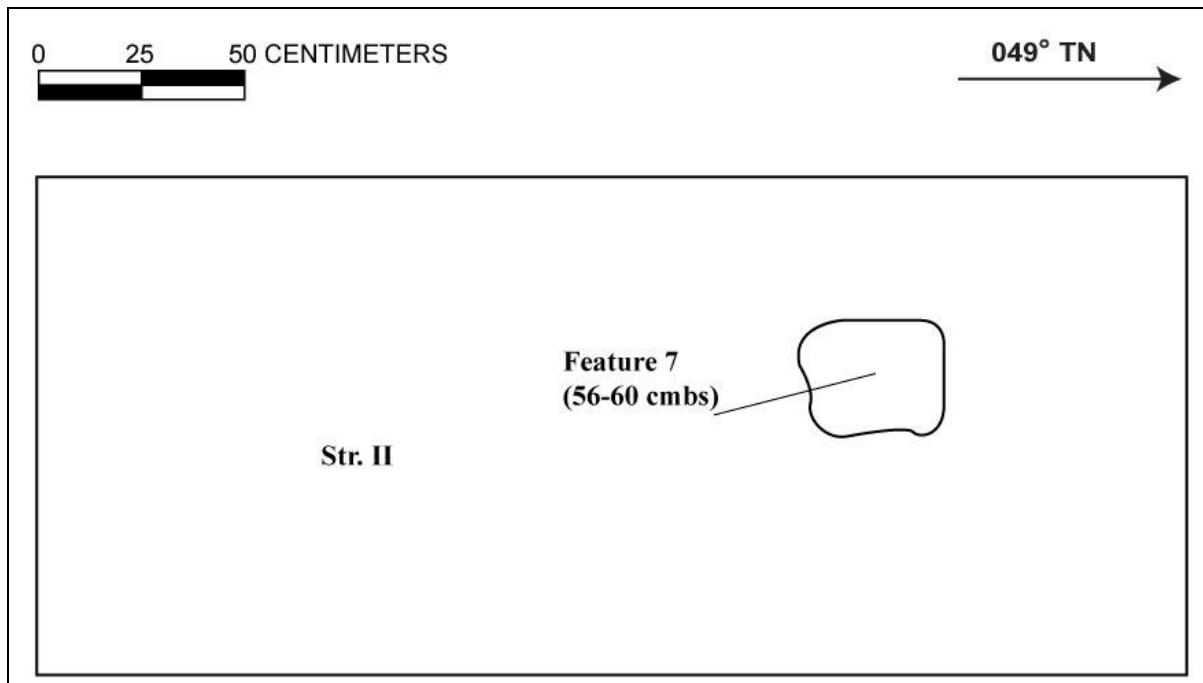
T-170A general location, view to south



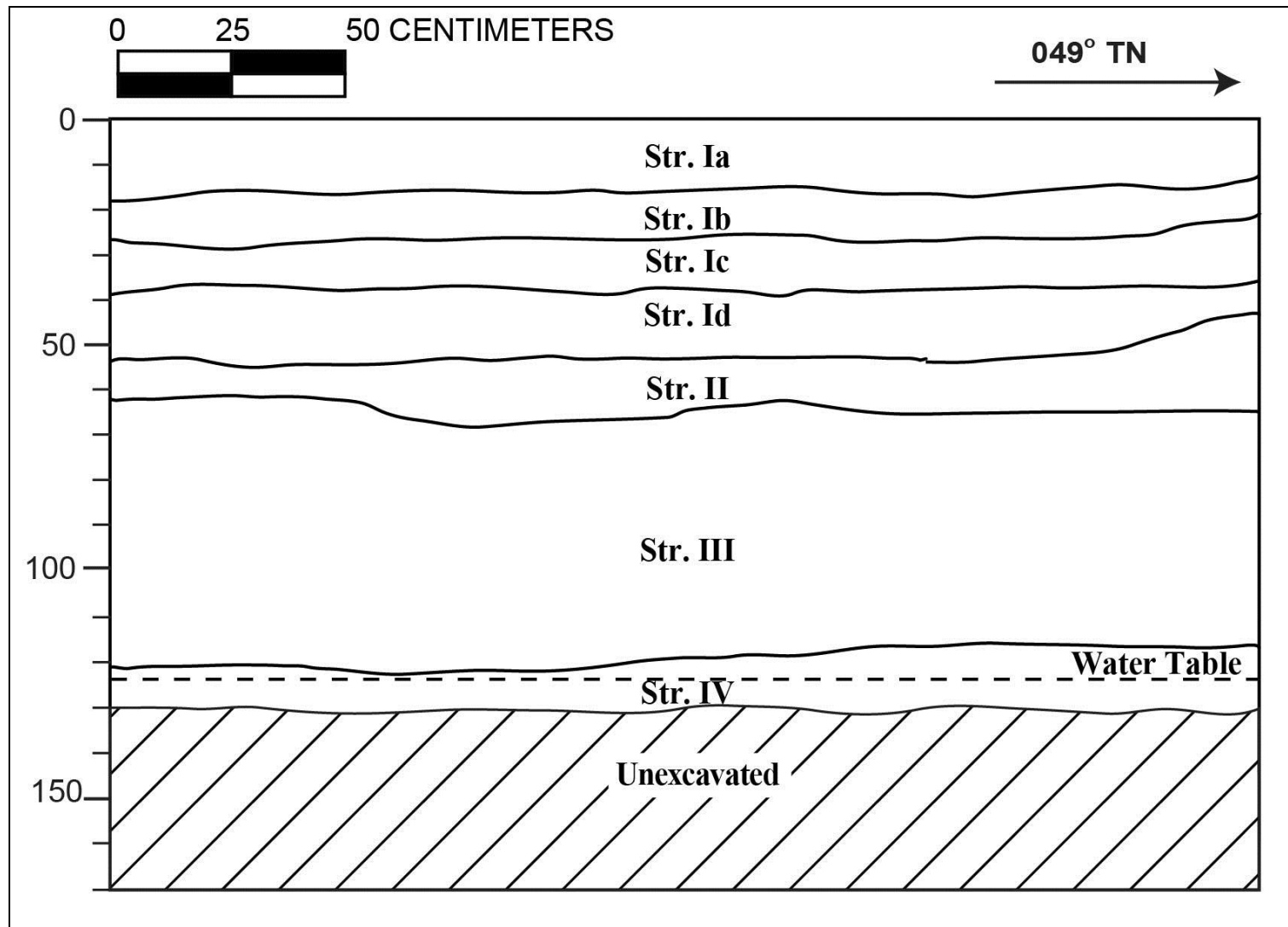
T-170A northwest wall, view to west



T-170A excavation floor showing SIHP# -7429 Feature 7 within Stratum II, view to northeast



T-170A plan view showing SIHP# -7429 Feature 7 within Stratum II



T-170A northwest wall profile

T-170A Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-15	Asphalt
Ib	12-25	Fill; 10 YR 3/3 (dark brown); very gravelly loam; weak, fine, crumb structure; moist, friable consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; basalt base course
Ic	25-30	Fill; 10 YR 8/2 (very pale brown); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; crushed coral fill
Id	30-52	Fill; 10 YR 7/2 (light gray); very fine sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary
II	52-60	Natural, 10 YR 4/2 (dark grayish brown); silty sand; structureless, single-grain; moist, loose consistency; non-plastic; diffuse, smooth lower boundary; buried A-horizon; contained glass, marine shells, and faunal bone; SIHP# -50-80-14-7429
III	60-123	Natural; 10 YR 7/4 (very pale brown); medium to coarse grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; diffuse, smooth lower boundary; natural Jaucas sand
IV	123-128	Natural; GLEY 1 5GY 7/1 (light greenish gray); coarse sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; natural marine sand

4.19 Test Excavation 171 (T-171)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:001
Elevation Above Sea Level:	1.27 m
UTM:	618903.4893 m E / 2355362.486 m N
Max Length / Width / Depth:	3.10 m / 0.93 m / 1.30 m
Orientation:	324 / 144° TN
Targeted Project Component:	Guideway Column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 171 (T-171) was located was located in a parking lot adjacent to a structure and approximately 43.0 m southwest of Queen Street, between Ward Avenue and Cummins Street. T-171 was located on private property owned by Victoria Ward, Ltd. There were no existing utilities in the immediate vicinity. The excavation area was level with the surrounding land surface.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-171 was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-171 was located within marsh land called Kukuluao, 90.0 m east of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 49.0 m of T-171. The roadway is also depicted on the 1887 Wall map of Honolulu along with three structures in the vicinity of T-171. The structures were located approximately 180.0 m northwest, 110.0 m southwest, and 240.0 m southwest of T-171. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of T-171 including a near-modern street grid with the closest intersection being Queen Street and Cummins Street 50.0 m east and the Cyclomere bicycle track 335.0 m north. Expanded urbanization in the vicinity of T-171 is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Several archaeological studies have been conducted in the vicinity of T-171. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 110.0 m south of T-171. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2002, CSH conducted archaeological monitoring for the Kaka'ako Improvement District 7 (ID-7) Project along Kamake'e Street from Queen Street to Ala Moana Boulevard. Three human burials (SIHP# 50-80-14-6376, -6377, and -6378) were inadvertently discovered during the project, one of which was encountered within a beach sand deposit (Souza et al. 2002). In 2004, Pacific Consulting Services, Inc conducted a subsurface archaeological inventory survey at Kapi'olani Boulevard and Kamake'e Street and noted remnants of the

Kewalo wetlands surface (SIHP# 50-80-14-6636) (Clark and Gosser 2005). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 240.0 m east of T-171. No cultural resources were encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which was located approximately 135.0 m southeast of T-171. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011).

Documentation Limitations: T-171 was excavated to a depth of 1.30 mbs and beneath the water table at 1.21 mbs. There were no specific factors that limited documentation of T-171. A backhoe was used to remove the upper fill strata and expose the underlying natural sediment. All of the natural sediment within T-171 was hand-excavated to below the water table.

Stratigraphic Summary: The stratigraphy of T-171 consisted of fill strata overlaying natural sediment. Observed strata included asphalt (Ia), very gravelly sandy loam (Ib), extremely gravelly sand (Ic), extremely gravelly sandy loam (Id), extremely gravelly sand (Ie), very fine sand fill (If), overlying natural silty clay (II) and natural loamy sand (III) over the coral shelf. The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: One fragment of a glass soda bottle (Acc. # 171-A-1) was recovered from Stratum Ib/Ic, 0.13 to 0.25 mbs. The bottle dates from the 1890s to 1913 and was from a bottling works with a plant in downtown Honolulu. The artifact collected from Stratum Ib/Ic indicates the deposit dates from the late nineteenth to the early twentieth century.

Feature Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: A single *Bos taurus* (possible) distal tibia fragment was collected individually during excavation from Stratum II (at 0.85 mbs). This bone showed evidence of being butchered with a metal blade, this (and the presence of *Bos taurus* - an introduced species) indicates an historic origin, not traditional Hawaiian.

Sample Results: No additional sample analysis was conducted.

GPR Discussion: A review of amplitude slice maps indicated no linear features which might indicate the presence of utilities. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.75 mbs.

GPR depth profiles for T-171 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.2 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.0 mbs.

Summary: T-171 was excavated to a depth of 1.30 mbs and beneath the water table at 1.21 mbs. The stratigraphy of T-171 consisted of fill strata (Ia-If) overlaying natural sediment (II-III). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). One fragment of a glass soda bottle (Acc. # 171-A-1) was recovered from Stratum Ib/Ic, 0.13 to 0.25 mbs. The artifact collected from Stratum Ib/Ic indicates the deposit dates from the late nineteenth

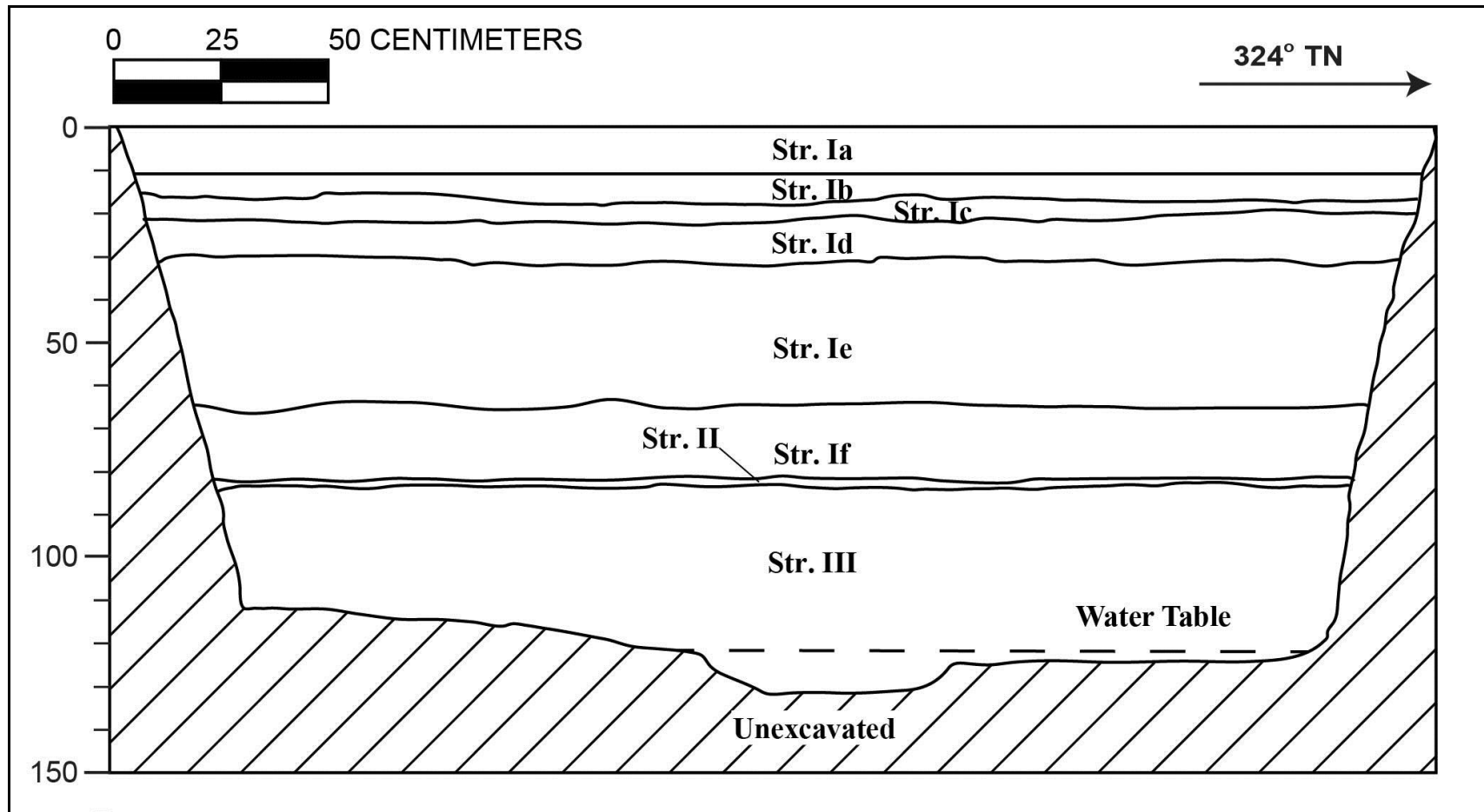
to the early twentieth century. A single *Bos taurus* (possible) distal tibia fragment was collected individually during excavation from Stratum II (at 0.85 mbs). This bone showed evidence of being butchered with a metal blade, this (and the presence of *Bos taurus* - an introduced species) indicates an historic origin, not traditional Hawaiian. No cultural resources were identified within T-171.



T-171 general location, view to north



T-171 southwest wall profile



T-171 southwest wall profile

T-171 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-12	Asphalt
Ib	12-17	Fill; 10 YR 3/2 (very dark grayish brown); very gravelly sandy loam; weak, fine, crumb structure; very friable, weak consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; basalt base course
Ic	15-22	Fill; 2.5 Y 5/2 (dark grayish brown); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; crushed coral base course
Id	19-32	Fill; 2.5 Y 3/2 (very dark grayish brown); extremely gravelly sandy loam; weak fine, crumb structure; slightly plastic; terrigenous origin; very abrupt, smooth lower boundary; basalt gravel in loam matrix
Ie	30-65	Fill; 2.5 Y 7/2 (light gray); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; clear, smooth lower boundary; crushed coral hydraulic fill
If	65-82	Fill; 2.5 Y 7/1 (light gray); very fine sand; structureless, massive; moist, loose consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; hydraulic fill
II	81-84	Natural; 2.5 Y 4/1 (dark gray); silty clay; structureless, massive; weak, fine, blocky structure; moist, firm consistency; very plastic; abrupt, smooth lower boundary; fine roots common; former A-horizon; marshland/wetland sediment/peat containing roots and organics
III	83-130	Natural; 2.5 Y 6/1 (gray); loamy sand; weak, fine, crumb structure; wet, slightly sticky consistency; non-plastic; marine origin; lower boundary not visible; fine roots common; overlying coral shelf

4.20 Test Excavation 172 (T-172)

Ahupua'a:	Honolulu
LCA:	387
TMK #:	2-3-002:001
Elevation Above Sea Level:	1.53 m
UTM:	618940 mE, 2355339 mN
Max Length/Width/Depth:	3.15 m / 0.97 m / 1.57 mbs
Orientation:	320 / 140° TN
Targeted Project Component:	Guideway Column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 172 (T-172) was located approximately 30.0 m southwest of the Queen Street and Cummins Street intersection within the DKKY Architecture Studio parking lot. T-172 was located on private property owned by Victoria Ward Ltd. No utilities were noted in the general vicinity. The excavation surface was level with the surrounding land surface.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-172 was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-172 was located within marsh land called Kukuluaeo, 130.0 m southeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 100.0 m of T-172. The roadway is also depicted on the 1887 Wall map of Honolulu along with three structures in the vicinity of T-172. The structures were located approximately 229.0 m northwest, 150.0 m west, and 270.0 m southwest of T-172. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of T-172 including a near-modern street grid with the closest intersection being Queen Street and Cummins Street less than 15.0 m northeast and the Cyclomere bicycle track 360.0 m north. Expanded urbanization in the vicinity of T-172 is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Several archaeological studies have been conducted in the vicinity of T-172. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 100.0 m south of T-172. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2002, CSH conducted archaeological monitoring for the Kaka'ako Improvement District 7 (ID-7) Project along Kamake'e Street from Queen Street to Ala Moana Boulevard. Three human burials (SIHP# 50-80-14-6376, -6377, and -6378) were inadvertently discovered during the project, one of which was encountered within a beach sand deposit (Souza et al. 2002). In 2004, Pacific Consulting Services, Inc conducted a subsurface archaeological inventory survey at Kapi'olani Boulevard and Kamake'e Street and noted remnants of the

Kewalo wetlands surface (SIHP# 50-80-14-6636) (Clark and Gosser 2005). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 180.0 m northeast of T-172. No cultural resources were encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which was located approximately 90.0 m southeast of T-172. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011).

Documentation Limitations: T-172 was excavated to a depth of 1.57 mbs, and below the water table at 1.48 mbs. There were no specific factors that limited documentation of T-172.

Stratigraphic Summary: The stratigraphy of T-172 consisted of fill strata overlying natural sediment to the water table. Observed strata included parking lot surface (Ia), gravelly silt loam (Ib), asphalt (Ic), silty loam (Id), asphalt (Ie), gravelly silty sand (If), very gravelly sand (Ig), and clay fill (Ih), overlying natural silty sand (II), and natural sands (III and IV) to the base of excavation below the water table. The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: Two historic artifacts (Acc. # 172-A-1 and A-2, see following photograph) were collected from Stratum Id, 0.27-0.32 mbs, a machine-blown glass bottle fragment, dated post-1907, and a machine-made red brick fragment. Artifacts collected from Stratum Id indicated that the stratum post-dated the early twentieth century.

Feature Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: A total of three bulk sediment samples were collected from Stratum II between 0.84 and 0.86 mbs, Stratum III between 1.0 and 1.10 mbs, and Stratum IV between 1.25 and 1.35 mbs. The sediment samples were wet-screened. The bulk sediment sample collected from Stratum II contained charcoal (1.3g), midden (*Neritidae Nerita picea* 0.2g), a small glass bead (0.1g), and burned fish faunal as well as burned mammal faunal (0.4g). The bulk sediment sample collected from Stratum III contained naturally-deposited marine shell (2.4g). The bulk sediment sample collected from Stratum IV did not contain significant material. The results of the sample analysis of bulk sediment samples documented the presence of a historic artifact and terrestrial and marine content within Stratum II, and no significant material with Stratum III and IV.

GPR Discussion: A review of amplitude slice maps indicated no linear features which might indicate the presence of utilities. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.75 mbs.

GPR depth profiles for T-172 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.2 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.0 mbs.

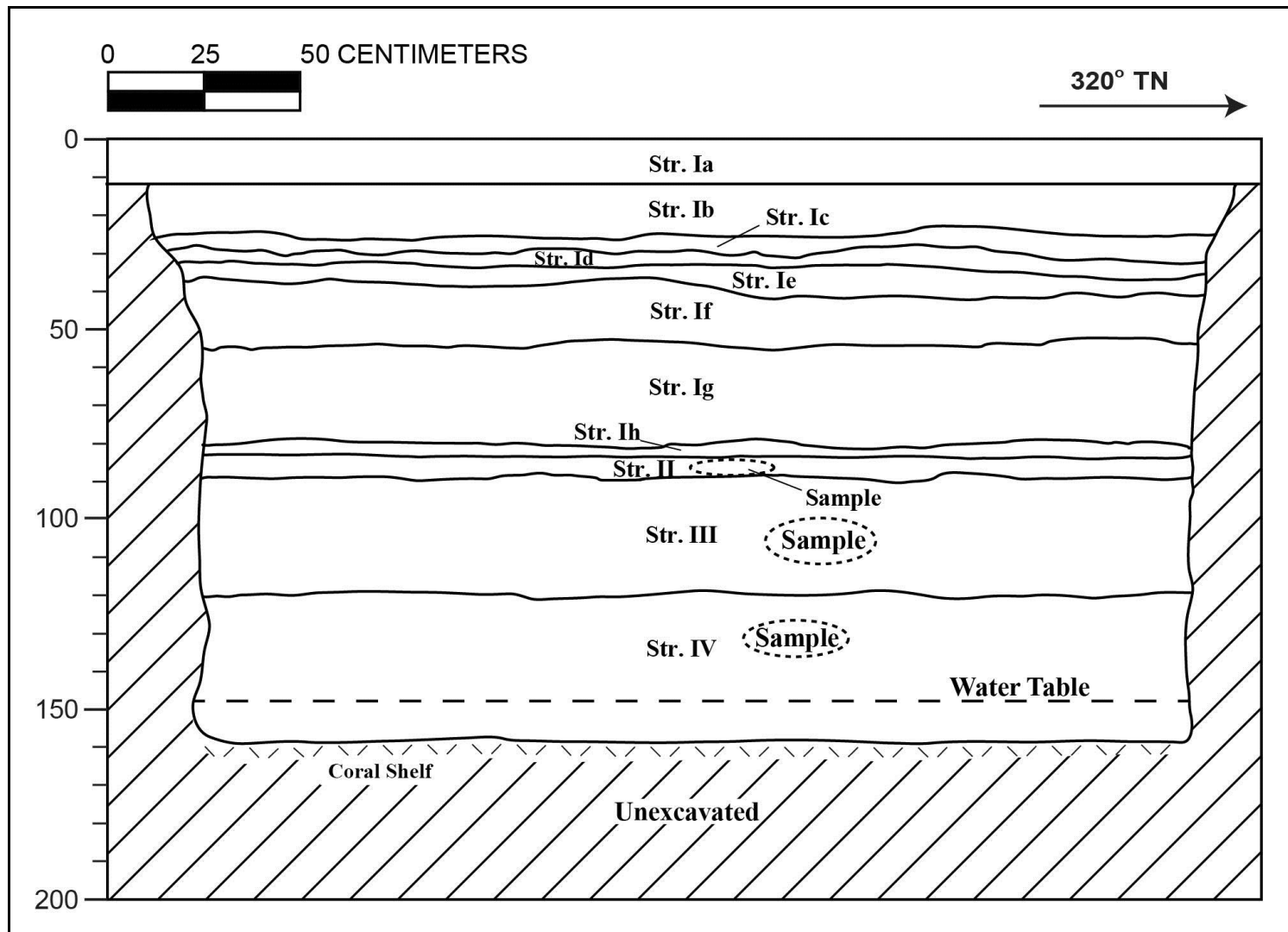
Summary: T-172 was excavated to a depth of 1.57 mbs, and below the water table at 1.48 mbs. The stratigraphy of T-172 consisted of fill strata (Ia-Ih) overlying natural sediment (II-IV) to the water table. The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). Artifacts collected from Stratum Id indicated that the stratum post-dated the early twentieth century. The results of the sample analysis of bulk sediment samples documented the presence of a historic artifact and terrestrial and marine content within Stratum II, and no significant material with Stratum III and IV.



T-172 general location, view to south



T-172 southwest wall profile, view to west



T-172 southwest wall profile

T-172 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-12	Asphalt
Ib	12-25	Fill; 10 YR 5/4 (yellowish brown); slightly gravelly silt loam; structureless, single-grain; moist, very friable consistency; non-plastic; terrigenous origin; clear, smooth lower boundary; imported fill
Ic	25-27	Asphalt; abrupt, wavy lower boundary
Id	27-32	Fill; 10 YR 5/3 (brown); silty loam; structureless, single-grain; dry, loose consistency; non-plastic; terrigenous origin; abrupt, wavy lower boundary; contained two historic artifacts
Ie	32-46	Asphalt; abrupt, wavy lower boundary
If	40-54	Fill; 10 YR 6/1 (gray); slightly gravelly silty sand; structureless, single-grain; loose consistency; non-plastic; mixed origin; abrupt lower boundary; imported fill
Ig	54-80	Fill; 10 YR 8/2 (very pale brown); very gravelly sand; structureless, single-grain; wet, very sticky consistency; very plastic; terrigenous origin; very abrupt, smooth lower boundary; crushed coral fill
Ih	80-83	Fill; 10 YR 7/1 (light gray); clay; structureless, massive; wet, sticky consistency; plastic; terrigenous origin; very abrupt, smooth lower boundary; hydraulic fill
II	83-89	Natural, Buried A-horizon; 10 YR 3/3 (dark brown); silty sand; structureless, single-grain; loose consistency; non-plastic; mixed origin; abrupt lower boundary; with organic material present
III	89-120	Natural; 10 YR 6/4 (light yellowish brown); sand; structureless, single-grain; non-sticky consistency; non-plastic; marine origin; clear, smooth lower boundary; Jaucas sand
IV	120-157	Natural; 10 YR 6/2 (gray); sand; structureless, single-grain; wet, non-sticky consistency; non-plastic; marine origin; lower boundary not visible; lagoonal sediment



T-172 glass bottle artifact (Acc. # 172-A-1 and A-2) from Stratum Id, dated post-1907

4.21 Test Excavation 172A (T-172A)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:001
Elevation Above Sea Level:	1.53 m
UTM:	618940.271 mE, 2355339.844 mN
Max Length/Width/Depth:	3.06 m / 0.98 m / 1.60 m
Orientation:	323 / 143° TN
Targeted Project Component:	Guideway Column
USDA Soil Survey Soil	Fill land (FL)

Setting: Test Excavation 172A (T-172A) was located approximately 30.0 m southwest of Queen Street and Cummins Street intersection, and was located within the DKKY Architecture parking lot. T-172A was an additional excavation added to further investigate the natural land surfaces documented in T-172. T-172A also investigated a guideway column location. T-172A was located on private property owned by Victoria Ward Ltd. No utilities were noted in the immediate vicinity. The excavation surface was level with the surrounding land surface.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-172A was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-172A was located within marsh land called Kukuluao, 130.0 m southeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 100.0 m of T-172A. The roadway is also depicted on the 1887 Wall map of Honolulu along with three structures in the vicinity of T-172A. The structures were located approximately 229.0 m northwest, 150.0 m west, and 270.0 m southwest of T-172A. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of T-172A including a near-modern street grid with the closest intersection being Queen Street and Cummins Street less than 15.0 m northeast and the Cyclomere bicycle track 360.0 m north. Expanded urbanization in the vicinity of T-172A is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Several archaeological studies have been conducted in the vicinity of T-172A. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 100.0 m south of T-172A. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2002, CSH conducted archaeological monitoring for the Kaka'ako Improvement District 7 (ID-7) Project along Kamake'e Street from Queen Street to Ala Moana Boulevard. Three human burials (SIHP# 50-80-14-6376, -6377, and -6378) were inadvertently

discovered during the project, one of which was encountered within a beach sand deposit (Souza et al. 2002). In 2004, Pacific Consulting Services, Inc conducted a subsurface archaeological inventory survey at Kapi'olani Boulevard and Kamake'e Street and noted remnants of the Kewalo wetlands surface (SIHP# 50-80-14-6636) (Clark and Gosser 2005). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 180.0 m northeast of T-172A. No cultural resources were encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which was located approximately 90.0 m southeast of T-172A. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011).

Documentation Limitations: T-172A was excavated to a depth of 1.60 mbs, and beneath the water table at 1.50 mbs. There were no specific factors that limited documentation of T-172A. A backhoe was used to remove the upper fill strata and expose the underlying natural sediment. All of the natural sediment within T-172A was hand-excavated to below the water table.

Stratigraphic Summary: The stratigraphy of T-172A consisted of fill strata overlying natural sediment to the water table. Observed strata included asphalt (Ia), gravelly silty loam (Ib), silty loam (Ic), asphalt (Id), gravelly silty loam (Ie), gravelly silty clay (If), gravelly medium grain sand (Ig), fine sand fill (Ih), very fine sand fill (Ii), silty clay (Ij), natural fine sand (II), and natural medium grain sand (III). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: A total of 47 historic artifacts (Acc. # 172A-A-1 to A-29, see following table and photographs) were collected from T-172A, Stratum Ic. The collection consists of one ceramic vessel fragment, five glass fragments from three bottles, and 41 colored tile/tile fragments. One of the bottles dates to the 1920s-1940s and was distributed by an O'ahu bottler. The large number of varied colored tiles may be flooring or wall tiles of a structure or construction debris, dating to the mid twentieth century.

Feature Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: No sample analysis was conducted.

GPR Discussion: A review of amplitude slice maps indicated no linear features which might indicate the presence of utilities. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.75 mbs.

GPR depth profiles for T-172A identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.1 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.0 mbs.

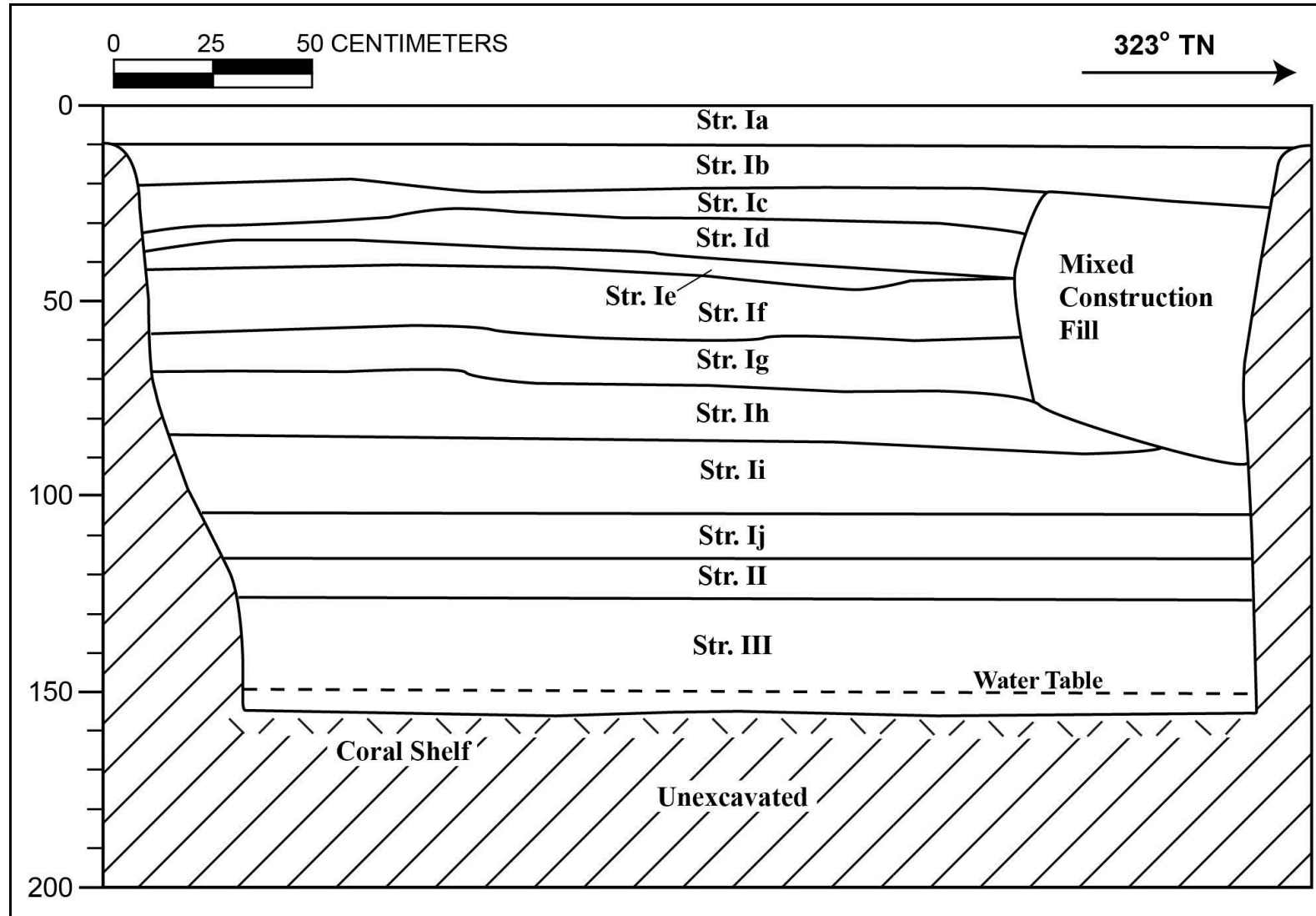
Summary: T-172A was excavated to a depth of 1.60 mbs, and beneath the water table at 1.50 mbs. The stratigraphy of T-172A consisted of fill strata overlying natural sediment to the water table. The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). A total of 47 historic artifacts were collected from T-172A, Stratum Ic. One of the bottles dates to the 1920s-1940s and was distributed by an O'ahu bottler. The large number of varied colored tiles may be flooring or wall tiles of a structure or construction debris, dating to the mid twentieth century. No cultural resources were identified within T-172A.



T-172A general location, view to southeast



T-172A southwest wall, view to west



T-172A southwest wall profile

T-172A Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-10	Asphalt
Ib	10-25	Fill; 10 YR 5/4 (yellowish brown); gravelly silty loam; weak, fine granular structure; moist, loose consistency; slightly plastic; terrigenous origin; clear lower boundary; base coarse, mixed fill
Ic	21-31	Fill; 10 YR 2/2 (very dark brown); silty loam; weak, fine, granular structure; moist, very friable consistency; slightly plastic; terrigenous origin; clear lower boundary; contained ceramic and glass artifacts; mixed construction fill
Id	31-38	Fill; 10 YR 2/1 (black); gravelly asphalt; strong, medium granular structure; moist, loose consistency; abrupt lower boundary; asphalt layer
Ie	38-41	Fill; 10 YR 4/3 (brown); gravelly silty loam; weak structure; moist, loose consistency; non-plastic; terrigenous origin; abrupt lower boundary; contained ceramics and glass noted (not collected); crushed coral fill
If	43-47	Fill; 5 YR 4/3 (reddish brown); gravelly silty clay; structureless, massive; moist, very friable consistency; plastic; terrigenous origin; abrupt lower boundary; reddish brown clay
Ig	58-67	Fill; 7.5 YR 4/2 (brown); gravelly medium grain sand; structureless, single-grain; loose, moist consistency; non-plastic; mixed origin; abrupt lower boundary; crushed coral
Ih	67-85	Fill; 10 YR 7/3 (very pale brown); fine sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; clear lower boundary; locally procured sand, hydraulic fill
Ii	85-105	Fill; 10 YR 8/4 (very pale brown); very fine sand; structureless, single-grain; clear lower boundary; hydraulic fill
Ij	105-115	Fill; 10 YR 6/4 (light yellowish brown); silty clay; structureless, massive; wet, sticky consistency; plastic; mixed origin; very abrupt lower boundary; hydraulic fill
II	115-125	Natural; 10 YR 6/4 (light yellowish brown); fine sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt lower boundary; natural sand
III	125-150	Natural; 10 YR 6/2 (light brownish gray); medium grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; marine sand

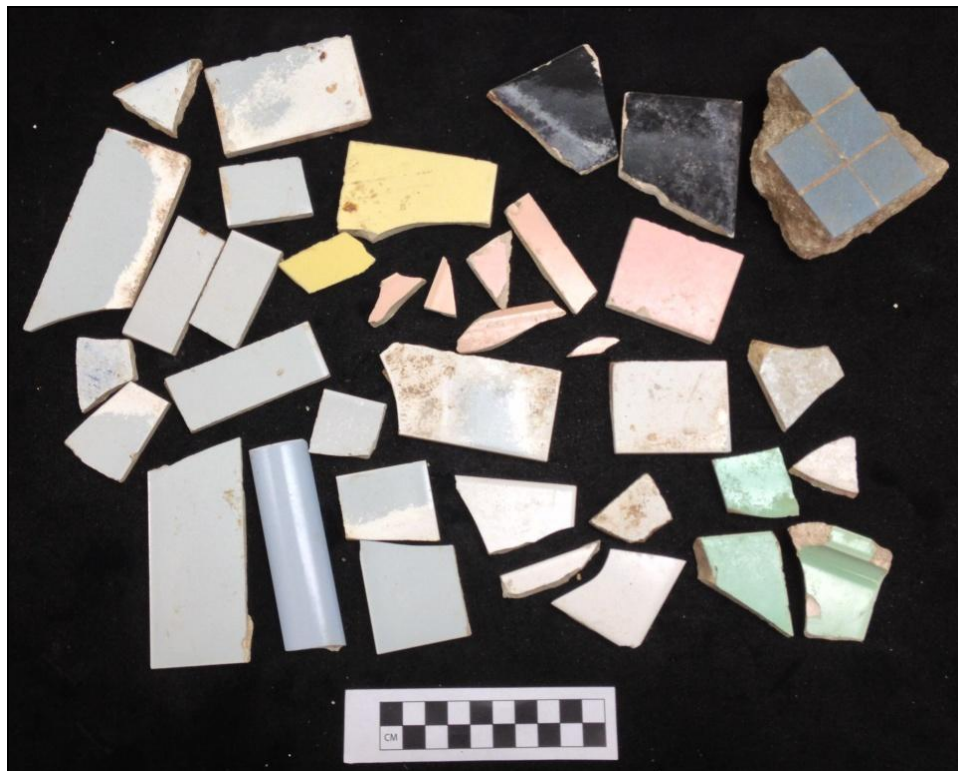
T-172A Artifact Analysis

Acc. # 172A-A-	Provenience	Ceramic Vessel Type	Portion	No.	Color	Origin; Age	Comments
1	T-172A, St. Ic	Dinnerware	Body	1	White		
Acc. # 172A-A-	Provenience	Glass Bottle Type	Portion	No.	Color	Origin; Age	Comments
2	T-172A, St. Ic	Bottle, Soda	Body-lip	1	Clear	American 1920s-40s	Smile Soda Water Works, O'ahu bottler
3	T-172A, St. Ic	Bottle	Body	1	Olive		
4	T-172A, St. Ic	Bottle	Body	2	Clear	1870s-post	Date based on color
5	T-172A, St. Ic- li, mixed pit fill	Bottle	Body	1	Clear	1870s-post	Date based on color
Acc. # 172A-A-	Provenience	Misc. Type	Portion	No.	Material	Origin; Age	Description
6	T-172A, St. Ic	Tile	Complete	1	Tile		Gray-blue
7	T-172A, St. Ic	Tile	Complete	1	Tile		Beige
8	T-172A, St. Ic	Tile	Complete	1	Tile		Blue-green
9	T-172A, St. Ic	Tile	Complete	1	Tile		Gray-blue; corner
10	T-172A, St. Ic	Tile	Complete	1	Tile		Five connected blue
11	T-172A, St. Ic	Tile	Complete	1	Tile		Beige tile; same size
12	T-172A, St. Ic	Tile	Complete	1	Tile		Blue glaze, rough
13	T-172A, St. Ic	Tile	Complete	1	Tile		Blue-gray glaze; has an "E"
14	T-172A, St. Ic	Tile	Complete	1	Tile		Blue-green; letters "NGA"
15	T-172A, St. Ic	Tile	Complete	1	Tile		Bluish-white glaze; triangular
16	T-172A, St. Ic	Tile	Complete	1	Tile		Light green glaze; letter "A"
17	T-172A, St. Ic	Tile	Complete	1	Tile		White glaze; rough
18	T-172A, St. Ic	Tile	Complete	1	Tile		Yellow glaze; FRMOSA MARK
19	T-172A, St. Ic	Tile	Fragment	2	Tile		Black glaze
20	T-172A, St. Ic	Tile	Fragment	1	Tile		Blue glaze; curved
21	T-172A, St. Ic	Tile	Fragment	8	Tile		Very pale blue; "REDONDO / TRUSIZE" – Mexican company
22	T-172A, St. Ic	Tile	Fragment	8	Tile		Light blue and white

Acc. # 172A-A-	Provenience	Misc. Type	Portion	No.	Material	Origin; Age	Description
23	T-172A, St. Ic	Tile	Fragment	1	Tile		Green glaze; curved up rim
24	T-172A, St. Ic	Tile	Fragment	1	Tile		Gray two-tone; bumpy texture
25	T-172A, St. Ic	Tile	Fragment	1	Tile		Pale blue glaze; square shaped
26	T-172A, St. Ic	Tile	Fragment	2	Tile		Light orange fragments, one has letters "RED" "TRU" on underside
27	T-172A, St. Ic	Tile	Fragment	2	Tile		White glaze
28	T-172A, St. Ic	Tile	Fragment	1	Tile		Yellow glaze
29	T-172A, St. Ic	Nail, Wire	Complete	1	Metal		Round head



T-172a glass bottle artifact (Acc. # 172A-A-2) from Stratum Ic, dated to 1920s-1940s



T-172a various colored tile fragments (Acc. # 172A-A-6 to A-29) collected from Stratum Ic dated mid-20th century

4.22 Test Excavation 173 (T-173)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:001
Elevation Above Sea Level:	1.42 m
UTM:	618972 mE, 2355312 mN
Max Length / Width / Depth:	3.05 m / 0.95 m / 1.37 m
Orientation:	320 / 140° TN
Targeted Project Component:	Guideway Column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 173 (T-173) was located in a parking lot 19.0 m southwest of Queen Street and approximately 16 m northwest of an Office Depot. T-173 was 50.0 m south of the intersection of Queen Street and Cummins Street. T-173 was 2.5 m northwest of a gas line and 2.7 m north of a water line. The excavation surface was level with the surrounding parking lot surface.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-173 was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-173 was located within marsh land called Kukuluaeo, 180.0 m southeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 140.0 m of T-173. The roadway is also depicted on the 1887 Wall map of Honolulu. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of, and including T-173, which is depicted within Queen Street and 47.0 m southeast of the Queen Street and Cummins Street intersection. Expanded urbanization in the vicinity of T-173 is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Several archaeological studies have been conducted in the vicinity of T-173. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 120.0 m south of T-173. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2002, CSH conducted archaeological monitoring for the Kaka'ako Improvement District 7 (ID-7) Project along Kamake'e Street from Queen Street to Ala Moana Boulevard. Three human burials (SIHP# 50-80-14-6376, -6377, and -6378) were inadvertently discovered during the project, one of which was encountered within a beach sand deposit (Souza et al. 2002). In 2004, Pacific Consulting Services, Inc conducted a subsurface archaeological inventory survey at Kapi'olani Boulevard and Kamake'e Street and noted remnants of the Kewalo wetlands surface (SIHP# 50-80-14-6636) (Clark and Gosser 2005). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani

Boulevard, located approximately 175.0 m northeast of T-173. No cultural resources were encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which was located approximately 50.0 m southeast of T-173. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011).

Documentation Limitations: T-173 was excavated to the water table at a depth of 1.37 mbs. There were no factors limiting documentation.

Stratigraphic Summary: The stratigraphy of T-173 consisted of fill strata overlying natural sediment to the water table. Observed strata included asphalt (Ia), very gravelly sandy loam base course (Ib), very gravelly loam fill (Ic), very gravelly sand fill (Id), very gravelly sandy loam fill (Ie), gravelly fine to coarse sand fill (If), and silty clay fill (Ig), overlying a natural loamy sand buried A-horizon (II) and naturally medium-grain sandy loam (III) to the water table. Observed stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: No artifacts were encountered.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: No samples were collected.

GPR Discussion: A review of amplitude slice maps indicated no linear features which might indicate the presence of utilities. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.25 mbs and increases again around 0.75 mbs.

GPR depth profiles for T-173 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.25 mbs and again at 0.5mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.0 mbs.

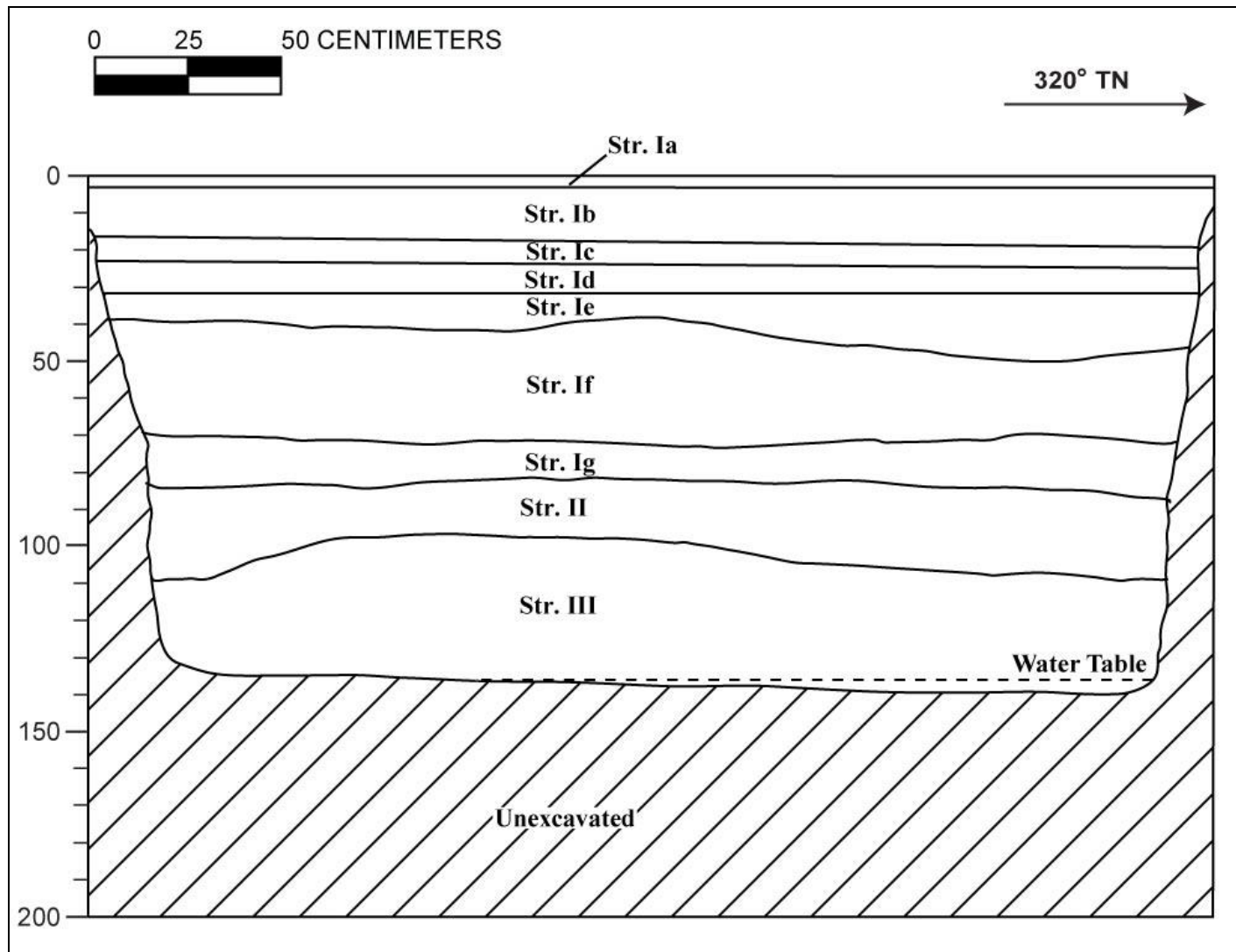
Summary: T-173 was excavated to the water table at a depth of 1.37 mbs. The stratigraphy of T-173 consisted of fill strata (IA-Ig) overlying natural sediment (II-III) to the water table. Observed stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). No cultural resources were identified within T-173.



T-173 general location, view to south



T-173 southwest wall profile



T-173 southwest wall profile

T-173 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-2	Asphalt
Ib	2-17	Fill; 2.5 Y 4/1 (dark gray); very gravelly sandy loam; structureless, single-grain; moist, loose consistency; non-plastic; terrigenous origin; very abrupt, smooth lower boundary; gravel base course
Ic	17-24	Fill; 7.5 YR 4/4 (brown); very gravelly loam; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; very abrupt, smooth lower boundary; grading fill
Id	23-33	Fill; 10 YR 8/2 (very pale brown); very gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; crushed coral grading fill
Ie	28-48	Fill; 2.5 Y 5/1 (gray); very gravelly sandy loam; structureless, single-grain; moist, very friable consistency; non-plastic; mixed origin; abrupt, wavy lower boundary; grading fill
If	38-72	Fill; 2.5 Y 8/2 (pale yellow); fine to coarse grain gravelly sand; structureless, single-grain; moist, very friable consistency; non-plastic; marine origin; abrupt, smooth lower boundary; hydraulic fill sand
Ig	71-84	Fill; 2.5 Y 8/3 (pale yellow); silty clay; weak, coarse, platy structure; moist, friable consistency; plastic; marine origin; very abrupt, smooth lower boundary; hydraulic fill
II	90-115	Natural, 2.5 Y 3/1 (very dark gray); loamy sand; weak, medium, granular structure; moist, very friable consistency; non-plastic; mixed origin; contained glass fragments; buried A-horizon; very compacted
III	108-142	Natural; 5 Y 6/1 (gray); medium-grained sandy loam; weak, medium, granular structure; moist, very friable consistency; non-plastic; lower boundary not visible; possible natural sandy loam marsh sediment

4.23 Test Excavation 174 (T-174)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:001
Elevation Above Sea Level:	1.41 m
UTM:	618979 mE, 2355309 mN
Max Length/Width/Depth:	6.76 m / 0.74 m / 1.25 m
Orientation:	232 / 52° TN
Targeted Project Component:	Utility Relocation
USDA Soil Survey Designation:	Fill land (FL)

Setting: Test Excavation 174 (T-174) was located in a parking lot 13.0 m southwest of Queen Street and approximately 8.0 m northwest of an Office Depot. A gas line was located 1.0 m northeast and 2.0 m northwest. Utilities in the vicinity of T-174 included two water lines located 2.0 m southeast and 2.0 m southwest of the excavation area.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-174 was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-174 was located within marsh land called Kukuluaeo, 180.0 m southeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 145.0 m of T-174. The roadway is also depicted on the 1887 Wall map of Honolulu. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of, and including T-174, which is depicted within Queen Street and 45.0 m southeast of the Queen Street and Cummins Street intersection. Expanded urbanization in the vicinity of T-174 is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Several archaeological studies have been conducted in the vicinity of T-174. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 100.0 m south of T-174. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2002, CSH conducted archaeological monitoring for the Kaka'ako Improvement District 7 (ID-7) Project along Kamake'e Street from Queen Street to Ala Moana Boulevard. Three human burials (SIHP# 50-80-14-6376, -6377, and -6378) were inadvertently discovered during the project, one of which was encountered within a beach sand deposit (Souza et al. 2002). In 2004, Pacific Consulting Services, Inc conducted a subsurface archaeological inventory survey at Kapi'olani Boulevard and Kamake'e Street and noted remnants of the Kewalo wetlands surface (SIHP# 50-80-14-6636) (Clark and Gosser 2005). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 175.0 m northeast of T-174. No cultural resources were

encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which was located approximately 45.0 m southeast of T-174. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011).

Documentation Limitations: T-174 was excavated to a depth of 1.25 mbs and beneath the water table at 1.15 mbs. Two utility lines were located in the northeastern portion of T-174 and limited documentation.

Stratigraphic Summary: The stratigraphy of T-174 consisted of fill overlying natural sediment. The observed strata included asphalt (Ia), gravelly sandy loam fill (Ib), gravelly sandy loam fill (Ic), sand fill (Id), sandy loam fill (Ie), natural sand (II), natural sandy loam (III). The stratigraphy generally conformed to USDA soil designation of Fill land (FL).

Artifacts Discussion: No artifacts were encountered.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: A single *Sus scrofa* (possible) rib fragment was collected individually during excavation from Stratum Ie (0.67-1.03 mbs). This bone showed no evidence of cultural modification and *Sus scrofa* is a Polynesian introduction common in both pre- and post-Contact contexts, therefore no conclusions can be drawn from this sample.

Sample Results: A single 1.0 liter bulk sample from Stratum II was collected at 1.0 mbs. The sample was wet-screened but contained no material.

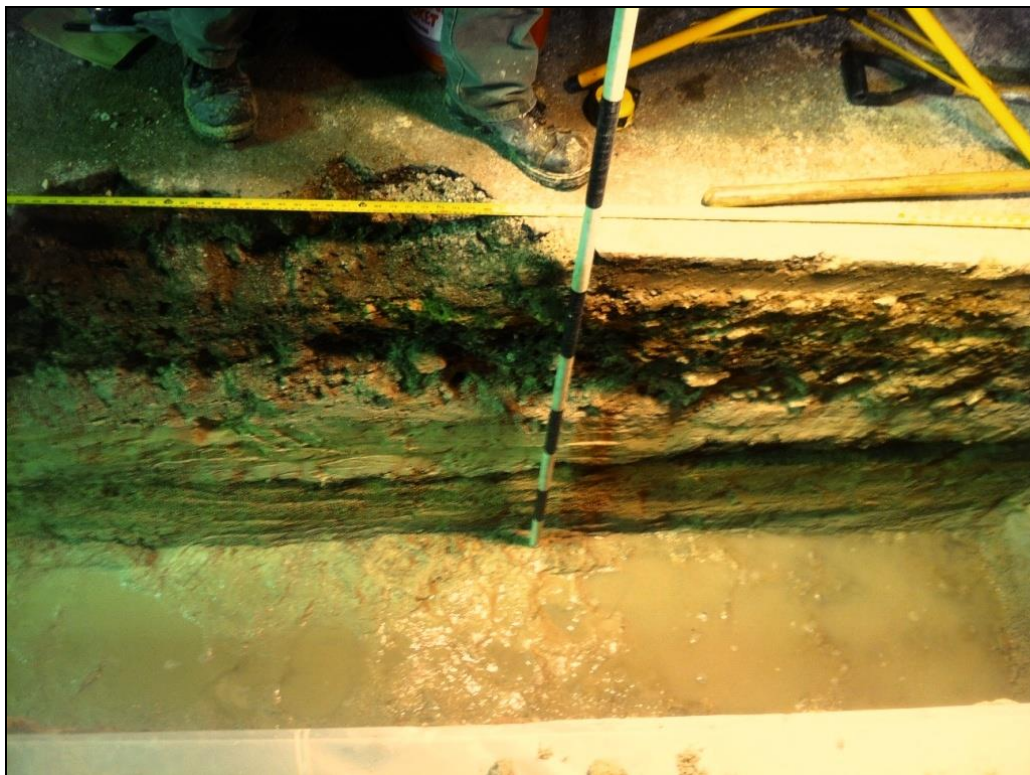
GPR Discussion: A review of amplitude slice maps indicated linear features which could correspond to one of the utilities encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs .

GPR depth profiles for T-174 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.15 mbs. Several anomalies were observed in the profile and one seems to correspond to a utility that was encountered during excavation. The maximum depth of clean signal return was approximately 1.4 mbs.

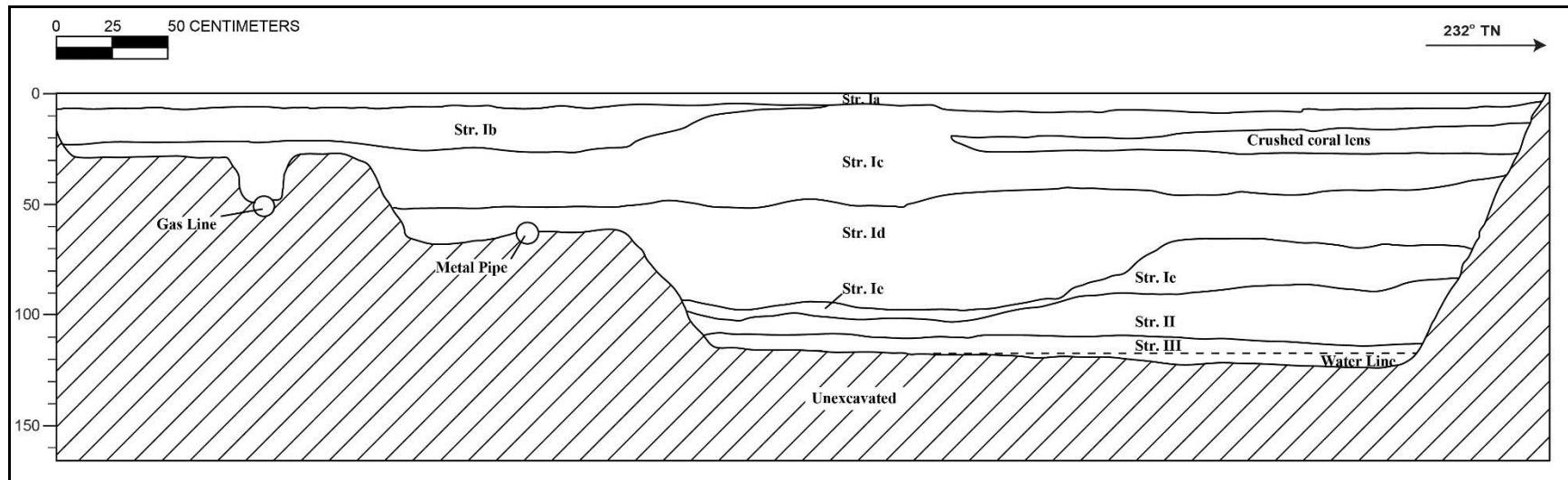
Summary: T-174 was excavated to a depth of 1.25 mbs and beneath the water table at 1.15 mbs. The stratigraphy of T-174 consisted of fill (Ia-Ie) overlying natural sediment (II-III). The stratigraphy generally conformed to USDA soil designation of Fill land (FL). A single *Sus scrofa* (possible) rib fragment was collected individually during excavation from Stratum Ie (0.67-1.03 mbs). This bone showed no evidence of cultural modification and *Sus scrofa* is a Polynesian introduction common in both pre- and post-Contact contexts, therefore no conclusions can be drawn from this sample. A single 1.0 liter bulk sample from Stratum II was collected at 1.0 mbs. The sample was wet-screened but contained no material. No cultural resources were identified within T-174.



T-174 general location (view to southwest)



T-174 southeast profile wall



T-174 southeast wall profile.

T-174 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-10	Asphalt
Ib	5-26	Fill; 10 YR 3/2 (very dark grayish brown); gravelly sandy loam; weak, medium, crumb structure; moist, loose consistency; non-plastic; mixed origin; clear, smooth lower boundary; imported fill
Ic	5-50	Fill; 10 YR 4/2 (dark grayish brown); gravelly sandy loam; weak, fine to medium, crumb structure; moist, loose consistency; non-plastic; mixed origin; clear, smooth lower boundary; fill deposit with cobble inclusions
Id	48-100	Fill; 10 YR 7/2 (very pale brown); sand; weak, very fine to fine structure; moist, loose consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; fill deposit
Ie	67-103	Fill; 2.5 Y 4/2 (dark grayish brown); sandy loam; weak, medium crumb structure; moist, loose consistency; non-plastic; marine origin; abrupt, smooth lower boundary; fill deposit, contained saw cut faunal bone
II	85-115	Natural, 10 YR 7/3 (very pale brown); sand; weak, medium structure; moist, loose consistency; non-plastic; marine origin; clear to diffuse lower boundary; natural sand deposit
III	110-125	Natural, 10 YR 6/1 (light brownish gray); sandy loam; fine to medium, crumb structure; moist, friable consistency; non-plastic; marine origin; natural marine sandy clay deposit.

4.24 Test Excavation 174A (T-174A)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:001
Elevation Above Sea Level:	1.43 m
UTM:	618982.8106 mE, 2355314.56 mN
Max Length/Width/Depth:	4.47 m / 0.81 m / 1.57 m
Orientation:	359 / 179° TN
Targeted Project Component:	Utility Relocation
USDA Soil Survey Designation:	Fill land (FL)

Setting: Test Excavation 174A (T-174 A) was located within the DKKY Architecture Parking Lot, behind the Office Depot. T-174A was an additional excavation added to increase testing coverage area for a utility relocation and to further investigate the natural land surfaces documented in T-174. T-174A also investigated a utility relocation. T-174A was located on private property owned by Victoria Ward Ltd. 8 m southwest of a storm drain, and 13.0 m southwest of a water line. The excavation surface was level with the surrounding land surface.

Summary of Background Research and Land: Land Court Application 670 map 1 indicates that T-174A was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-174A was located within marsh land called Kukuluaeo, 180.0 m southeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 145.0 m of T-174A. The roadway is also depicted on the 1887 Wall map of Honolulu. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of, and including T-174A, which is depicted within Queen Street and 45.0 m southeast of the Queen Street and Cummins Street intersection. Expanded urbanization in the vicinity of T-174A is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Several archaeological studies have been conducted in the vicinity of T-174A. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 100.0 m south of T-174A. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2002, CSH conducted archaeological monitoring for the Kaka'ako Improvement District 7 (ID-7) Project along Kamake'e Street from Queen Street to Ala Moana Boulevard. Three human burials (SIHP# 50-80-14-6376, -6377, and -6378) were inadvertently discovered during the project, one of which was encountered within a beach sand deposit (Souza et al. 2002). In 2004, Pacific Consulting Services, Inc conducted a subsurface archaeological inventory survey at Kapi'olani Boulevard and Kamake'e Street and noted remnants of the Kewalo wetlands surface (SIHP# 50-80-14-6636) (Clark and Gosser 2005). In 2005, CSH

conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 175.0 m northeast of T-174A. No cultural resources were encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which was located approximately 45.0 m southeast of T-174A. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011).

Documentation Limitations: T-174A was excavated to the coral shelf at 1.57 mbs. There were no factors that limited the excavation of T-174A.

Stratigraphic Summary: Stratigraphy at T-174A included fill overlying natural sediment. Observed strata included asphalt (Ia), very gravelly sandy loam base course fill (Ib), extremely gravelly loam (Ic), clay loam fill (Id), sandy loam fill (Ie), natural sand (II), natural very coarse sand (III). The stratigraphy was consistent with the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: One artifact, a red, machine-made brick fragment (Acc. # 174A-A-1), was collected at approximately 0.50 mbs within Stratum Ic. No datable attributes were present.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: A single *Bos taurus* proximal phalanx was collected individually during excavation from Stratum Id (at 0.75 mbs). This bone showed no evidence of cultural modification, but the presence of *Bos taurus* (an introduced species) indicates a post-Contact origin.

Sample Results: No sample analysis was conducted.

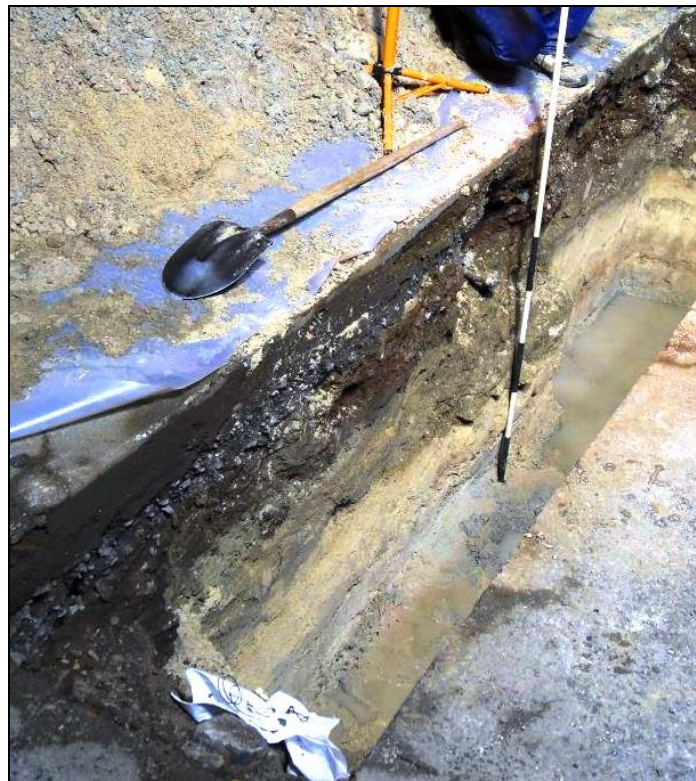
GPR Discussion: A review of amplitude slice maps indicated no linear features although several utilities were encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-174A identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.3 mbs. An anomaly was observed in the profile but not within excavation boundaries. The maximum depth of clean signal return was approximately 0.85 mbs.

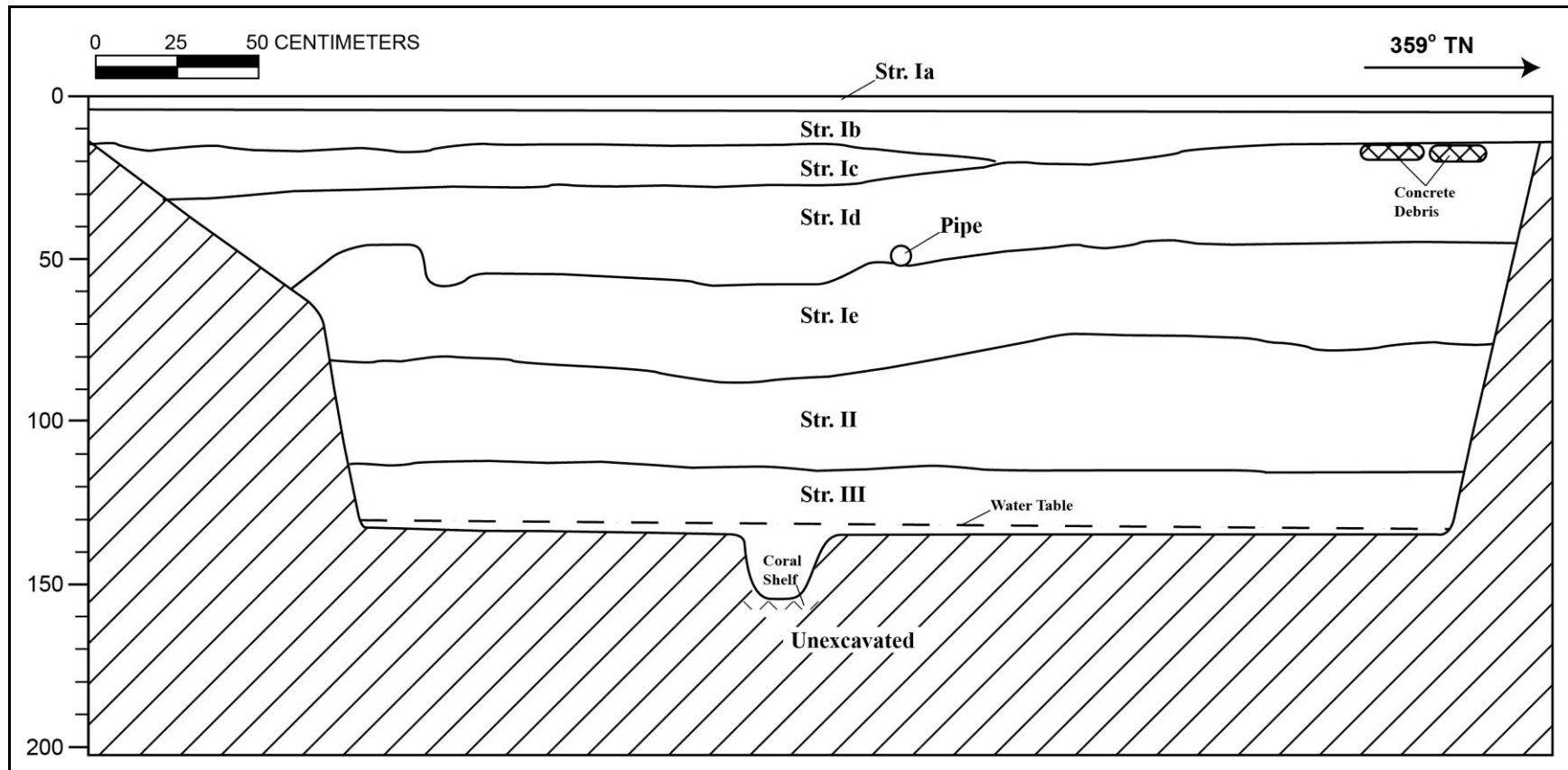
Summary: T-174A was excavated to the coral shelf at 1.57 mbs. Stratigraphy at T-174A included fill (Ia-Ie) overlying natural sediment (II-III). The stratigraphy was consistent with the USDA soil survey designation of Fill land (FL). One artifact, a red, machine-made brick fragment (Acc. # 174A-A-1), was collected at approximately 0.50 mbs within Stratum Ic. No datable attributes were present. A single *Bos taurus* proximal phalanx was collected individually during excavation from Stratum Id (at 0.75 mbs). This bone showed no evidence of cultural modification, but the presence of *Bos taurus* (an introduced species) indicates a post-Contact origin. No cultural resources were identified within T-174A.



T-174A general location, view to the south



T-174A east profile wall, view to the south



T-174A east wall profile.

T-174A Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-5	Asphalt
Ib	4-20	Fill; 10 YR 3/2 (very dark grayish brown); very gravelly sandy loam; structureless, single-grain; moist, loose consistency; non-plastic; terrigenous origin; clear, smooth lower boundary; few, fine to medium roots; imported fill base course
Ic	14-28	Fill; 10 YR 3/1 (very dark gray); extremely gravelly loam; structureless, single-grain; moist, loose consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; basalt base course
Id	15-60	Fill; 7.5 YR 2.5/2 (very dark brown); clay loam; weak, fine, blocky structure; moist, very friable consistency; slightly plastic; terrigenous origin; clear, wavy lower boundary
Ie	45-87	Fill; 10 YR 6/3 (pale brown); sandy loam; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; clear, smooth lower boundary; contained faunal remains
II	74-115	Natural; 10 YR 7/3 (very pale brown); sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; Jaucas sand
III	112-157	Natural; 10 YR 6/1 (gray); very coarse sand; structureless, single-grain; wet, non-sticky consistency; non-plastic; marine origin; lower boundary not visible; Jaucas sand

4.25 Test Excavation 175 (T-175)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:001 [plat]
Elevation Above Sea Level:	1.3 m
UTM:	619004 mE, 2355284 mN
Max Length / Width / Depth:	3.10 m / 0.96 m / 0.85 m
Orientation:	226 / 46° TN
Targeted Project Component:	Guideway Column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 175 (T-175) was located in the west sidewalk of Queen Street, northeast of an Office Depot and 135.0 m northwest of the intersection of Kamake'e and Queen Street. A gas line was present within the T-175 excavation area, and a water line was located 5.5 m northeast. The excavation area of T-175 was moderately sloping to the southwest.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-175 was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-175 was located within marsh land called Kukuluaeo, 215.0 m southeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 185.0 m of T-175. The roadway is also depicted on the 1887 Wall map of Honolulu. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of, and including T-175, which is depicted within Queen Street and 87.0 m southeast of the Queen Street and Cummins Street intersection. Expanded urbanization in the vicinity of T-175 is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Several archaeological studies have been conducted in the vicinity of T-175. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 80.0 m southwest of T-175. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2002, CSH conducted archaeological monitoring for the Kaka'ako Improvement District 7 (ID-7) Project along Kamake'e Street from Queen Street to Ala Moana Boulevard. Three human burials (SIHP# 50-80-14-6376, -6377, and -6378) were inadvertently discovered during the project, one of which was encountered within a beach sand deposit (Souza et al. 2002). In 2004, Pacific Consulting Services, Inc conducted a subsurface archaeological inventory survey at Kapi'olani Boulevard and Kamake'e Street and noted remnants of the Kewalo wetlands surface (SIHP# 50-80-14-6636) (Clark and Gosser 2005). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 175.0 m northeast of T-175. No cultural resources were

encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which was located within 10.0 m southeast of T-175. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011).

Documentation Limitations: T-175 was excavated to 0.85 m below datum (mbd) by hand due to the presence of three utilities extending perpendicular through the test excavation. A level datum, consisting of a string and line level, was established in order to document the stratigraphic profile of the sloped excavation area. The presence of three utilities limited documentation.

Stratigraphic Summary: The stratigraphy of T-175 consisted of fill overlying natural sediment. Observed strata included asphalt (Ia), gravelly silt loam fill (Ib), stony sandy loam fill (Ic), extremely gravelly sand fill (Id) and fine sand fill (Ie) overlying natural coarse sand (II) and medium to coarse Jaucas sand (III). The stratigraphy of T-175 generally conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: No artifacts were observed.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: Two bulk sediment samples were collected for within T-175 including one sample from Stratum II between 0.60-0.71 mbs and one from from Stratum III between 0.70-0.85 mbs. Both samples were wet-screened yielding no cultural material.

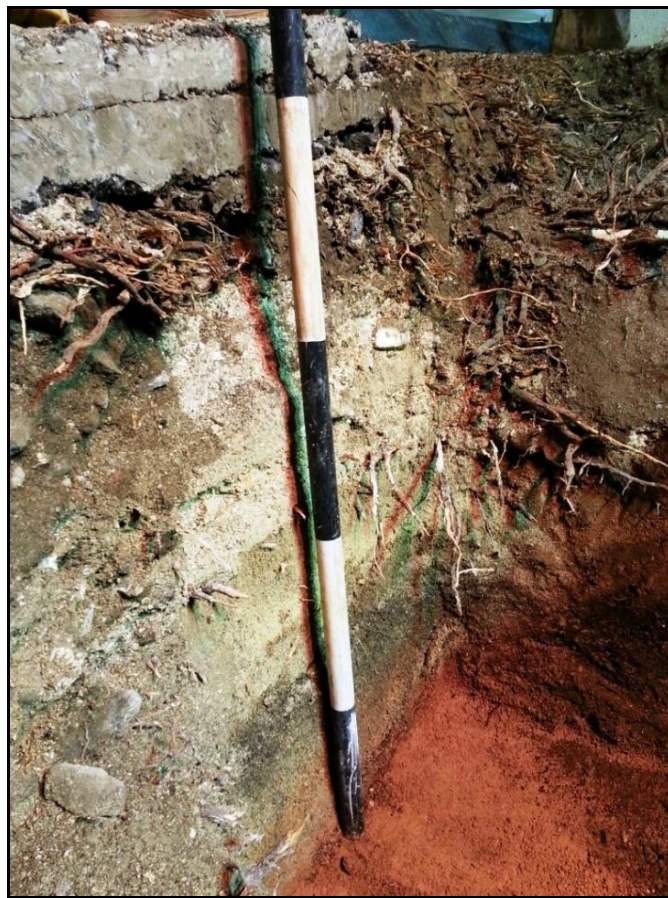
GPR Discussion: A review of amplitude slice maps indicate linear features that correspond to the utilities encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth except for the utilities. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.75 mbs.

GPR depth profiles for T-175 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile indicates a change in reflectivity occurring around 0.15 mbs. Several Anomalies were observed in the profile and seem to correspond to the utilities encountered during excavation. The maximum depth of clean signal return was approximately 1.25 mbs.

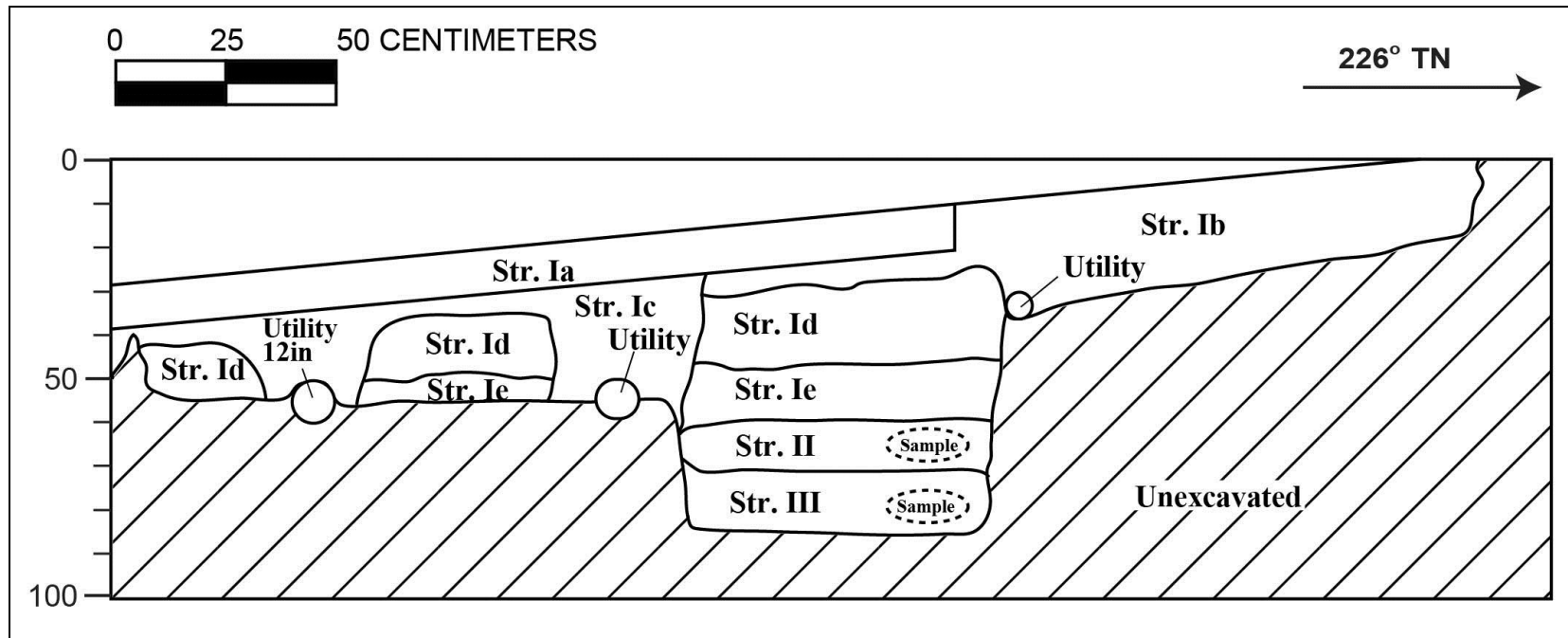
Summary: T-175 was excavated to 0.85 m below datum by hand due to the presence of three utilities extending perpendicular through the test excavation. The stratigraphy of T-175 consisted of fill (Ia-Ie) overlying natural sediment (II-III). A total of two bulk sediment samples were collected for within T-175 including one sample from Stratum II between 0.60-0.71 mbs and one from from Stratum III between 0.70-0.85 mbs. Both samples were wet-screened yielding no cultural material. No cultural resources were identified within T-175.



T-175 general location (view to southwest).



T-175 southeast wall profile (view to south).



T-175 southeast wall profile mapped using level datum

T-175 Stratigraphic Description

Stratum	Depth (cmbd)	Description
Ia	10-37	Asphalt (sloped surface)
Ib	0-35	Fill; 10 YR 4/2 (dark grayish brown); gravelly silty loam; structureless, single-grain; moist, loose consistency; non-plastic; terrigenous origin; clear, broken/discontinuous lower boundary; many, coarse to very coarse roots; modern A-horizon/ imported sod
Ic	25-55	Fill; 10 YR 5/1 (gray); stony sandy loam; structureless, single-grain; moist, loose consistency; non-plastic; terrigenous origin; lower boundary not visible
Id	25-55	Fill; 10 YR 7/2 (light gray); extremely gravelly sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; broken/discontinuous lower boundary
Ie	45-60	Fill; 2.5 Y 8/2 (pale yellow); fine sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; clear, smooth lower boundary; few roots
II	60-71	Natural; 2.5 Y 2.5/1 (black); coarse sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; clear, smooth lower boundary; many, coarse to very coarse roots; natural sediment with shell material in matrix
III	70-85	Natural; 2.5 8/3 (pale yellow); medium to coarse sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; lower boundary not visible; natural Jaucas sand

4.26 Test Excavation 175A (T-175A)

Ahupua'a:	Honolulu
LCA :	387
TMK #:	2-3-002:001 plat
Elevation Above Sea Level:	1.3 m
UTM:	619004.726 mE, 2355283.115 mN
Max Length / Width / Depth:	2.17 m / 0.90 m / 1.27 m
Orientation:	40 / 220° TN
Targeted Project Component:	Guideway Column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 175A (T-175A) was located directly southeast of T-175, which had three utilities that severely limited excavation. T-175A was located in the southwest (*makai*) sidewalk of Queen Street, northeast of an Office Depot and 132.0 m northwest of the intersection of Kamake'e and Queen Street. T-175A was an additional excavation added to further investigate the natural land surfaces documented in T-175. T-175A also investigated a guideway column location. T-175A was on private property owned by Victoria Ward Ltd. The southwest end of T-175A intersected with a gas line and a water line was located 5.6 m northeast of T-175A. The southwest portion of T-175A was 0.2 m above the surrounding sidewalk due to a sloped surface.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-175A was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-175A was located within marsh land called Kukuluaeo, 215.0 m southeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 185.0 m of T-175A. The roadway is also depicted on the 1887 Wall map of Honolulu. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of, and including T-175A, which is depicted within Queen Street and 87.0 m southeast of the Queen Street and Cummins Street intersection. Expanded urbanization in the vicinity of T-175A is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Several archaeological studies have been conducted in the vicinity of T-175A. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 80.0 m southwest of T-175A. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2002, CSH conducted archaeological monitoring for the Kaka'ako Improvement District 7 (ID-7) Project along Kamake'e Street from Queen Street to Ala Moana Boulevard. Three human burials (SIHP# 50-80-14-6376, -6377, and -6378) were inadvertently

discovered during the project, one of which was encountered within a beach sand deposit (Souza et al. 2002). In 2004, Pacific Consulting Services, Inc conducted a subsurface archaeological inventory survey at Kapi'olani Boulevard and Kamake'e Street and noted remnants of the Kewalo wetlands surface (SIHP# 50-80-14-6636) (Clark and Gosser 2005). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 175.0 m northeast of T-175A. No cultural resources were encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which was located within 10.0 m southeast of T-175A. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011).

Documentation Limitations: T-175A was excavated to the coral shelf at a depth of 1.27 mbs. The water table was reached at 1.18 mbs. The presence of utilities limited documentation procedures.

Stratigraphic Summary: The stratigraphy of T-175A consisted of fill overlying natural sediment. Observed strata included asphalt (Ia), very gravelly sandy loam fill (Ib), extremely gravelly sand fill (Ic) and fine- to medium-grain sand fill (Id) overlying natural loamy sand (II) and coarse Jaucas sand (III and IV). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: One basalt rock (Acc. # 175A-A-1) from a lower stratum was collected for lithic analysis. The basalt rock did not appear to be culturally-modified and no additional analysis was performed.

Feature Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: A total of two sediment samples were collected from within T-175A including one bulk sediment sample from Stratum II between 0.60-0.68 mbs (2.0 L) and one bulk sample from Stratum III between 0.80-0.90 mbs (2.0 L). Both samples were collected from the excavation floor and are not depicted on the stratigraphic profile. Both of the samples were wet-screened.

The bulk sediment from Stratum II contained gastropods (0.6 g), Lucinidae *Ctena bella* (0.3 g), Neritidae *Nerita* sp. (0.1 g), and possible marine shell midden including Conidae *Conus* sp. (3.0 g), Turbinidae *Turbo* sp. (2.7 g), crustacean (2.2 g), Trochidae *Trochus* sp. (0.7 g), Mytilidae *Brachidontes crebirstriatus* (0.5 g), Cypraeidae *Cypraea* sp. (0.3 g), and Tellinidae *Tellina* sp. (0.1 g).

The bulk sediment sample from Stratum III contained crustaceans (0.2 g), Mytilidae *Brachidontes crebirstriatus* (0.2 g), gastropods (0.1 g), and roots (5.6 g).

The analysis of bulk sediment samples documented the presence of possible marine shell midden within Stratum III and naturally-occurring, water-rounded marine shell and roots within Stratum III.

GPR Discussion: A review of amplitude slice maps indicate linear features that correspond to the utilities encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth except for the utilities. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.75 mbs.

GPR depth profiles for T-175A identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile indicates a change in reflectivity occurring around 0.15 mbs. Several Anomalies were observed in the profile and seem to correspond to the utilities encountered during excavation. The maximum depth of clean signal return was approximately 1.25 mbs.

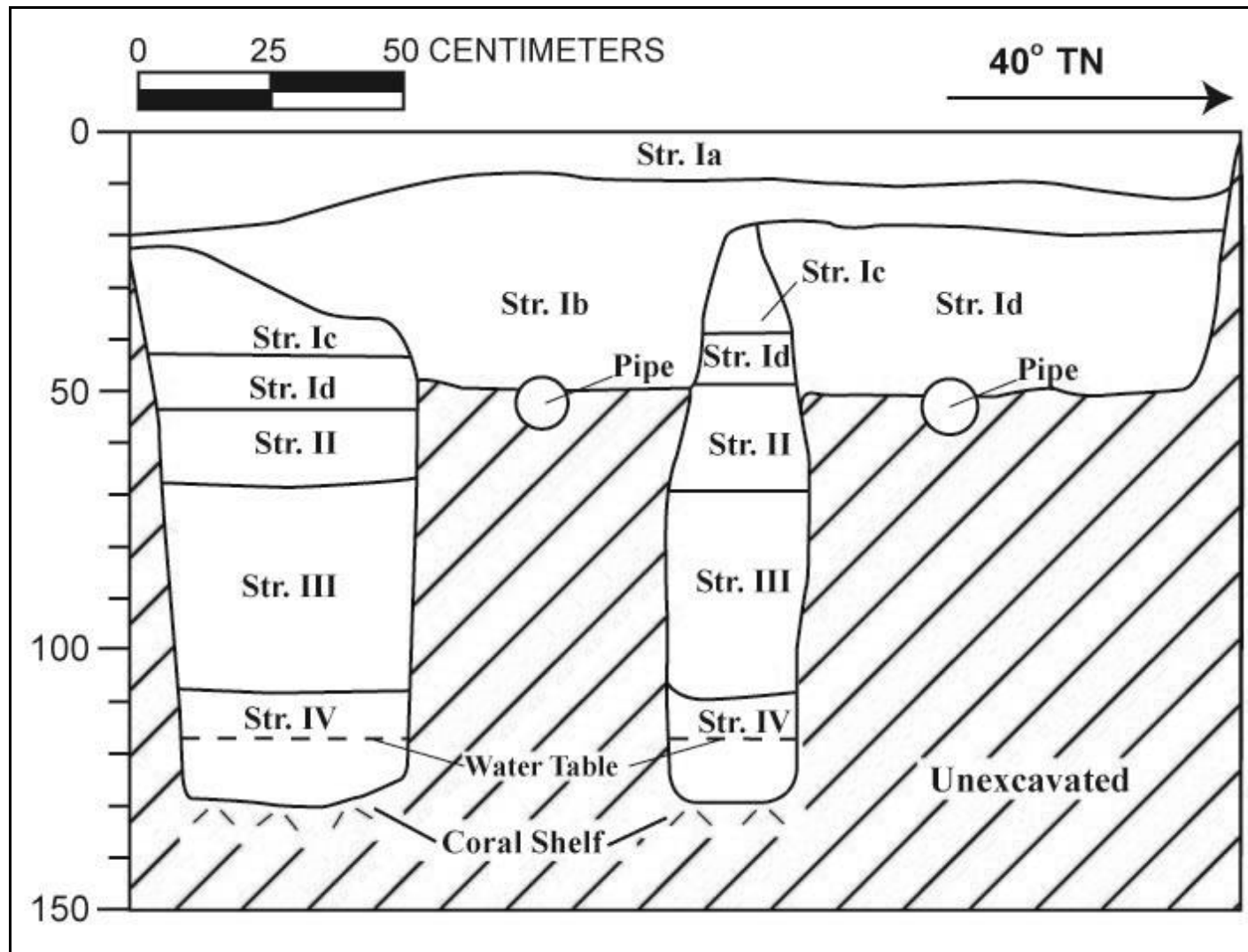
Summary: T-175A was excavated to the coral shelf at a depth of 1.27 mbs. The stratigraphy of T-175A consisted of fill (Ia-Id) overlying natural sediment (II-IV). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). One basalt rock (Acc. # 175A-A-1) from a lower stratum was collected for lithic analysis. The basalt rock did not appear to be culturally-modified. A total of two sediment samples were collected from within T-175A including one bulk sediment sample from Stratum II between 0.60-0.68 mbs (2.0 L) and one bulk sample from Stratum III between 0.80-0.90 mbs (2.0 L). The analysis of bulk sediment samples documented the presence of possible marine shell midden within Stratum III and naturally-occurring, water-rounded marine shell and roots within Stratum III. No cultural resources were identified.



T-175A general location, view to southwest



T-175A northwest wall profile.



T-175A northwest wall profile

T-175A Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-20	Asphalt
Ib	10-50	Fill; 10 YR 2/2 (very dark brown); very gravelly sandy loam; weak, fine, crumb structure; moist, very friable consistency; non-plastic; terrigenous origin; clear, irregular lower boundary; many, very fine to coarse roots; with cobble and boulder inclusion
Ic	23-45	Fill; 10 YR 8/2 (very pale brown); extremely gravelly sand; structureless, single-grain; dry, loose consistency; non-plastic; marine origin; abrupt, broken/discontinuous lower boundary; many, fine to coarse roots; crushed coral fill
Id	20-55	Fill; 10 YR 7/3 (very pale brown); fine to medium grained sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, broken/discontinuous lower boundary; many, very fine to medium roots; imported sand fill
II	50-70	Natural; 10 YR 3/2 (very dark grayish brown); loamy sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, broken/discontinuous lower boundary; many, very fine to medium roots; buried A-horizon;
III	70-109	Natural; 10 YR 7/4 (very pale brown); coarse sand; structureless, single-grain; wet, non-sticky consistency; non-plastic; marine origin; diffuse, broken/discontinuous lower boundary; few, very fine roots; Jaucas sand
IV	109-127	Natural; GLEY 1 7/5GY (light greenish gray); coarse sand; structureless, single-grain; wet, non-sticky consistency; non-plastic; marine origin; lower boundary not visible; Jaucas sand

4.27 Test Excavation 176 (T-176)

Ahupua'a:	Honolulu
LCA:	387
TMK #:	2-3-002: 001
Elevation Above Sea Level:	1.34 m
UTM:	619030.4643 m E / 2355248.852 m N
Max Length/Width/Depth:	3.20 m / 0.70 m / 1.16 m
Orientation:	318 / 138° TN
Targeted Project Component:	Guideway column
USDA Soil Designation:	Fill land (FL)

Setting: Test Excavation 176 (T-176) was located 1.0 m from the northeast side of the Office Depot Building within the landscaping and approximately 11.5 m southwest of Queen Street. T-176 was located on private property owned by Victoria Ward, Ltd. A gas line was located directly next to the northeast side of the excavation area and parallel water line was located 8.0 m to the northeast. The excavation area was level with the surrounding land surface, although slightly raised in relation to the paved parking lot.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-176 was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-176 was located within marsh land called Kukuluaeo, 250.0 m southeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 220.0 m of T-176. The roadway is also depicted on the 1887 Wall map of Honolulu. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of, and including T-176, which is depicted within Queen Street and 90.0 m northwest of the Queen Street and Kamake'e Street intersection. Expanded urbanization in the vicinity of T-176 is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Several archaeological studies have been conducted in the vicinity of T-176. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 80.0 m southwest of T-176. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2002, CSH conducted archaeological monitoring for the Kaka'ako Improvement District 7 (ID-7) Project along Kamake'e Street from Queen Street to Ala Moana Boulevard. Three human burials (SIHP# 50-80-14-6376, -6377, and -6378) were inadvertently discovered during the project, one of which was encountered within a beach sand deposit (Souza et al. 2002). In 2004, Pacific Consulting Services, Inc conducted a subsurface archaeological inventory survey at Kapi'olani Boulevard and Kamake'e Street and noted remnants of the

Kewalo wetlands surface (SIHP# 50-80-14-6636) (Clark and Gosser 2005). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 190.0 m northeast of T-176. No cultural resources were encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which was located within 5.0 m northeast of T-176. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011). In 2006, CSH conducted an archaeological inventory survey for the Victoria Ward Village Shops Project, adjacent to Kaka'ako ID-7 District and bounded by Auahi Street, Kamake'e Street, and Queen Street. Three historic properties were identified: SIHP# 50-80-14-6854, a subsurface cultural layer containing both historic and prehistoric cultural material and five human burials; SIHP# 50-80-14-6855, a pre-Contact traditional Hawaiian cultural layer with six human burials; and SIHP# 50-80-14-6856, a historic fishpond remnant, part of Land Commission Grant 3194, "Kolowalu," awarded to Kalae and Kaaua (Bell et al. 2006). From 2003-2004, CSH conducted archaeological monitoring for the Queen Street extension from Kamake'e Street to Pi'ikoi Street as part of the Kaka'ako Community Improvement District 10 Project. Three historic properties were documented: SIHP# 50-80-14-6658, a cluster of 28 burials; SIHP# 50-80-14-6659, two isolated burials; and SIHP# 50-80-14-6660, a post-Contact trash deposit (O'Hare et al. 2006). In 2009, CSH conducted an archaeological inventory survey for the Queen Street Parks Project, which encompassed two parcels of land separated by Queen Street and bounded by Kamake'e Street, Auahi Street, Waimanu Street, and Pi'ikoi Street. The investigation encountered deposits relating to SIHP# 50-80-14-6856, a historic fishpond remnant (Thurman et al. 2009).

Documentation Limitations: T-176 was excavated to the water table at a depth of 1.16 mbs. A backhoe was used to remove the upper fill strata and expose the buried A-horizon. All of the natural sediment within T-176 was hand-excavated to the water table.

Stratigraphic Summary: The stratigraphy of T-176 consisted of fill overlying natural sediment. Observed strata included clay landscaping fill (Ia), very gravelly loamy sand fill (Ib), overlying a natural loamy sand (II) and medium grain sand (III). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: No artifacts were observed.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: One screened sample (45.0 L) was collected from Stratum II between 0.39-0.70 mbs. The sample was screened on site and yielded one *Barbatia sp.* shell fragment (0.2 g). The results of sample analysis suggested Stratum II within T-176 lacked cultural content.

GPR Discussion: A review of amplitude slice maps indicated a linear feature but was not encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth except for the linear feature. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.25 mbs and increases again around 0.5 mbs.

GPR depth profiles for T-176 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.2 mbs and again at approximately 0.65 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.0 mbs.

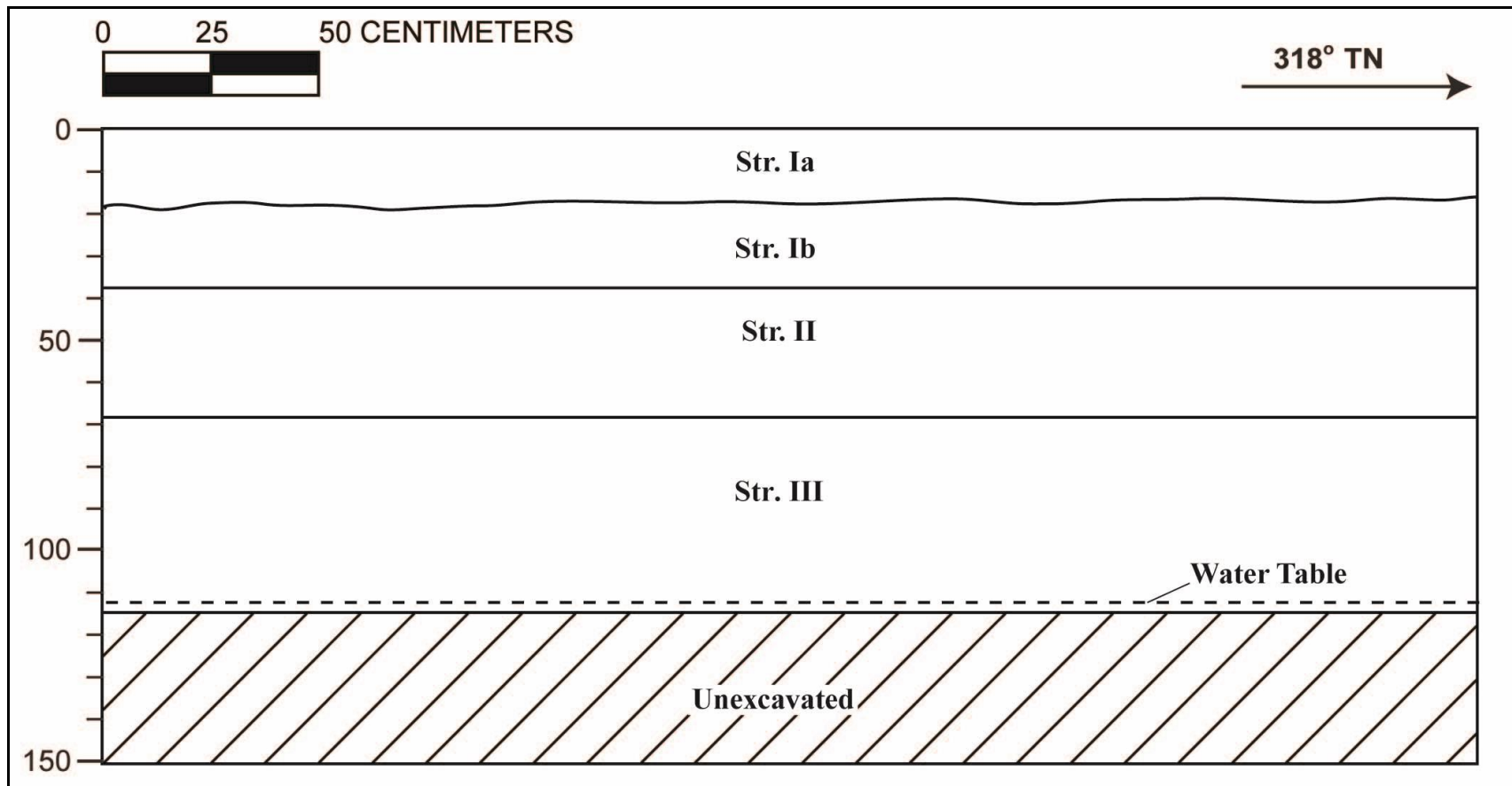
Summary: T-176 was excavated to the water table at a depth of 1.16 mbs. The stratigraphy of T-176 consisted of fill strata (Ia-Ib) overlying a buried A-horizon (II) and natural sediment (III). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). One screened sample (45.0 L) was collected from Stratum II between 0.39-0.70 mbs. The sample was screened on site and yielded one *Barbatia sp.* shell fragment (0.2 g). The results of sample analysis suggested Stratum II within T-176 lacked cultural content. No cultural resources were identified in T-176.



T-176 general location, view to northwest



T-176 southwest profile wall, view to west



T-176 southwest wall profile

T-176 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-17	Fill; 7.5 YR 3/2 (dark brown); clay; structureless, massive; moist, very friable consistency; plastic; terrigenous origin; abrupt, smooth lower boundary; fine to medium roots common
Ib	17-39	Fill; 10 YR 5/2 (grayish brown), with mottles of 10 YR 8/2 (very pale brown); very gravelly loamy sand; structureless, single-grain; moist, very friable consistency; non-plastic; mixed origin; diffuse, smooth lower boundary; many fine to coarse roots; contained coral and cement cobbles
II	39-70	Natural; 2.5 Y 3/1 (very dark gray); loamy sand; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; diffuse, smooth lower boundary; buried A-horizon; former land surface
III	70-116	Natural; 2.5Y 8/2 (pale brown); medium-grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; Jaucas sand

4.28 Test Excavation 177 (T-177)

Ahupua'a:	Honolulu
LCA:	387
TMK #:	2-3-002:001
Elevation Above Sea Level:	1.68 m
UTM:	619057.5522 m E / 2355217.902 m N
Max Length/Width/Depth:	3.05 m / 0.96 m / 1.53 m
Orientation:	234 / 54° TN
Targeted Project Component:	Guideway Column
USDA Soil Designation	Fill land (FL)

Setting: Test Excavation 177 (T-177) was located in the landscaping on the northeast side of the Office Depot Parking lot, approximately 8.0 m southwest of Queen Street and 50.5 m northwest of Kamake'e Street. T-177 was located on private property owned by Victoria Ward, Ltd. A perpendicular water line was located 4.8 m to the northeast. The excavation area was level with the surrounding land surface.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-177 was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-177 was located within marsh land called Kukuluaeo, 290.0 m southeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 250.0 m of T-177. The roadway is also depicted on the 1887 Wall map of Honolulu. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of, and including T-177, which is depicted within Queen Street and 50.0 m northwest of the Queen Street and Kamake'e Street intersection. Expanded urbanization in the vicinity of T-177 is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Several archaeological studies have been conducted in the vicinity of T-177. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 85.0 m southwest of T-177. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2002, CSH conducted archaeological monitoring for the Kaka'ako Improvement District 7 (ID-7) Project along Kamake'e Street from Queen Street to Ala Moana Boulevard. Three human burials (SIHP# 50-80-14-6376, -6377, and -6378) were inadvertently discovered during the project, one of which was encountered within a beach sand deposit (Souza et al. 2002). In 2004, Pacific Consulting Services, Inc conducted a subsurface archaeological inventory survey at Kapi'olani Boulevard and Kamake'e Street and noted remnants of the Kewalo wetlands surface (SIHP# 50-80-14-6636) (Clark and Gosser 2005). In 2005, CSH

conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 190.0 m northeast of T-177. No cultural resources were encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which included the location of T-177. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011). In 2006, CSH conducted an archaeological inventory survey for the Victoria Ward Village Shops Project, adjacent to Kaka'ako ID-7 District and bounded by Auahi Street, Kamake'e Street, and Queen Street. Three historic properties were identified: SIHP# 50-80-14-6854, a subsurface cultural layer containing both historic and prehistoric cultural material and five human burials; SIHP# 50-80-14-6855, a pre-Contact traditional Hawaiian cultural layer with six human burials; and SIHP# 50-80-14-6856, a historic fishpond remnant, part of Land Commission Grant 3194, "Kolowalu," awarded to Kalae and Kaaua (Bell et al. 2006). From 2003-2004, CSH conducted archaeological monitoring for the Queen Street extension from Kamake'e Street to Pi'ikoi Street as part of the Kaka'ako Community Improvement District 10 Project. Three historic properties were documented: SIHP# 50-80-14-6658, a cluster of 28 burials; SIHP# 50-80-14-6659, two isolated burials; and SIHP# 50-80-14-6660, a post-Contact trash deposit (O'Hare et al. 2006). In 2009, CSH conducted an archaeological inventory survey for the Queen Street Parks Project, which encompassed two parcels of land separated by Queen Street and bounded by Kamake'e Street, Auahi Street, Waimanu Street, and Pi'ikoi Street. The investigation encountered deposits relating to SIHP# 50-80-14-6856, a historic fishpond remnant (Thurman et al. 2009).

Documentation Limitations: T-177 was excavated to a depth of 1.53 mbs and below the water table at 1.50 mbs. A large block of concrete and a metal utility pipe were encountered at 0.76 mbs in the eastern portion of T-177, which limited excavation. A backhoe was used to remove the upper fill strata and expose the buried A-horizon. All of the natural sediment within T-177 was hand-excavated to the water table.

Stratigraphic Summary: The stratigraphy of T-177 consisted of fill overlying natural sediment. Observed strata included clay loam topsoil (Ia), gravelly silty loam fill (Ib) gravelly silty loam fill (Ic), and silty clay fill (Id), overlying natural silty sand (II), and natural medium grain sand (III). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: See sample results below.

Feature Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: A total of two screened samples and two bulk sediment samples were collected from within T-177. The bulk sediment samples and the contents of both screened samples were wet-screened.

A 30-liter screened sediment sample from Stratum II between 0.90-1.05 mbs yielded charcoal (0.1 g), naturally-occurring marine shell material (8.3 g), a seed (0.1 g), and a piece of volcanic glass (0.1).

A 2-liter bulk sample of Stratum II from between 0.90-1.04 mbs yielded naturally-occurring marine shell material (1.1 g) and possible marine shell midden (50.6 g). The possible marine shell midden included Neritidae (*Nerita picea*) (42.7 g), Strombidae (*Strombus maculatus*) (3.8 g), Pteriidae (*Pinctada radiata*) (1.2 g), Mytilidae (*Brachidontes crebristriatus*) (1.1 g), Turbinidae (*Turbo sandwicensis*) (0.9 g), Lucinidae (*Ctena bella*) (0.5 g), crustacean (0.2 g), and Naticidae (*Natica sp.*) (0.2 g).

A 34-liter screened sample from Stratum III between 0.97-1.53 mbs yielded naturally-occurring marine shell material (1.3 g). The marine shell was classified as Turbinidae (*Turbo sandwicensis*) (0.7 g), crustacean (0.2 g), Lucinidae (*Ctena bella*) (0.1 g), Mytilidae (*Brachidontes crebristriatus*) (0.1 g), and Strombidae (*Strombus sp.*) (0.1 g).

A 5-liter bulk sample from Stratum III between 0.97 mbs and 1.20 mbs yielded *Ruppia maritima* seeds (0.1 g).

Sample analysis documented the presence of possible traditional food refuse (marine shell) within Stratum II, and naturally-occurring marine shell within Stratum III. The presence of possible food refuse generally supports the identification of Stratum II as a former land surface (buried A-horizon).

GPR Discussion: A review of amplitude slice maps indicated linear features but not within excavation boundaries although a concrete jacket and metal utility were encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.25 mbs and increases again around 0.75 mbs.

GPR depth profiles for T-177 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.25 mbs. An anomaly was observed in the profile that corresponds with the concrete jacket and abandoned metal pipe encountered during excavation. The maximum depth of clean signal return was approximately 1.0 mbs.

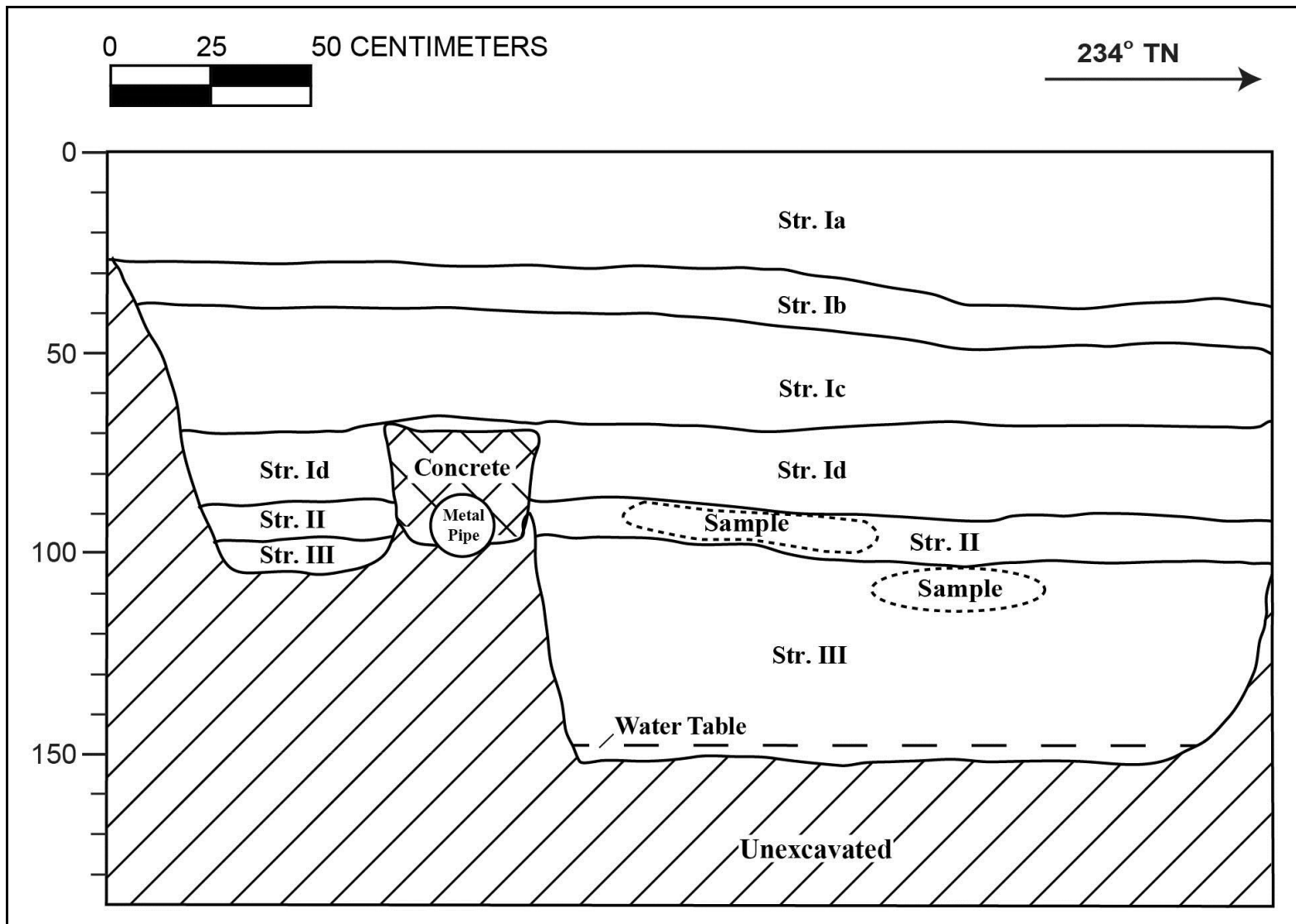
Summary: T-177 was excavated to a depth of 1.53 mbs and below the water table at 1.50 mbs. The stratigraphy of T-177 consisted of fill (Ia-Id) overlying natural sediment (II-III). The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). A total of two screened samples and two bulk sediment samples were collected from within T-177. Sample analysis documented the presence of possible traditional food refuse (marine shell) within Stratum II, and naturally-occurring marine shell within Stratum III. The presence of possible food refuse generally supports the identification of Stratum II as a former land surface (buried A-horizon).



T-177 general location, view to west



T-177 southeast wall profile close-up at 1.4 mbs, view to south



T-177 southeast wall profile

T-177 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-38	Fill; 7.5 YR 3/2 (dark brown); clay loam; weak, fine, granular structure; moist, very friable consistency; slightly plastic; terrigenous origin; clear, wavy lower boundary; many very coarse roots; organic topsoil
Ib	25-49	Fill; 10 YR 4/3 (brown); gravelly silty loam; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; clear, wavy lower boundary; few medium to coarse roots; imported fill
Ic	39-71	Fill; 10 YR 3/1 (very dark gray); gravelly silty loam; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; clear, smooth lower boundary; few medium to coarse roots; imported fill contained asphalt gravel
Id	67-92	Fill; 10 YR 6/3 (pale brown); silty clay; structureless, massive; moist, firm; slightly plastic; terrigenous origin; very abrupt smooth lower boundary; few fine to medium roots; hydraulic fill; contained a metal spike
II	90-105	Natural; 10 YR 4/2 (dark grayish brown); silty sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; diffuse, smooth lower boundary; buried A-horizon; former land surface
III	97-153	Natural; 10 YR 7/4 (very pale brown); medium-grain sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; Jaucas sand

4.29 Test Excavation 178 (T-178)

Ahupua'a:	Honolulu
LCA:	387
TMK #:	2-3-003:087
Elevation Above Sea Level:	1.42 m
UTM:	619088 mE, 2355193 mN
Max Length/Width/Depth:	3.0 m / 0.97 m / 1.47 m
Orientation:	122 / 302° TN
Targeted Project Component:	Guideway Column
USDA Soil Survey Designation:	Fill land (FL)

Setting: Test Excavation 178 (T-178) was located within the center lane on Queen Street, near the corner of Queen Street and Kamake'e Street. T-178 was located on private property owned by the Hawai'i Community Authority south (*makai*) of the World Gym facility and across from the Office Depot. T-178 was located 1.0 m north (*mauka*) of an electric line, 2.0 m east of a water line, and 4.0 m south of the sewer line.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-178 was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-178 was located within marsh land called Kukuluaeo, 320.0 m southeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 300.0 m of T-178. The roadway is also depicted on the 1887 Wall map of Honolulu. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of, and including T-178, which is depicted within Queen Street and adjacent to the Queen Street and Kamake'e Street intersection. Expanded urbanization in the vicinity of T-178 is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Several archaeological studies have been conducted in the vicinity of T-178. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 90.0 m southwest of T-178. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2002, CSH conducted archaeological monitoring for the Kaka'ako Improvement District 7 (ID-7) Project along Kamake'e Street from Queen Street to Ala Moana Boulevard. Three human burials (SIHP# 50-80-14-6376, -6377, and -6378) were inadvertently discovered during the project, one of which was encountered within a beach sand deposit (Souza et al. 2002). In 2004, Pacific Consulting Services, Inc conducted a subsurface archaeological inventory survey at Kapi'olani Boulevard and Kamake'e Street and noted remnants of the Kewalo wetlands surface (SIHP# 50-80-14-6636) (Clark and Gosser 2005). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani

Boulevard, located approximately 230.0 m northeast of T-178. No cultural resources were encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which included the location of T-178. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011). In 2006, CSH conducted an archaeological inventory survey for the Victoria Ward Village Shops Project, adjacent to Kaka'ako ID-7 District and bounded by Auahi Street, Kamake'e Street, and Queen Street. Three historic properties were identified: SIHP# 50-80-14-6854, a subsurface cultural layer containing both historic and prehistoric cultural material and five human burials; SIHP# 50-80-14-6855, a pre-Contact traditional Hawaiian cultural layer with six human burials; and SIHP# 50-80-14-6856, a historic fishpond remnant, part of Land Commission Grant 3194, "Kolowalu," awarded to Kalae and Kaaua (Bell et al. 2006). From 2003-2004, CSH conducted archaeological monitoring for the Queen Street extension from Kamake'e Street to Pi'ikoi Street as part of the Kaka'ako Community Improvement District 10 Project. Three historic properties were documented: SIHP# 50-80-14-6658, a cluster of 28 burials; SIHP# 50-80-14-6659, two isolated burials; and SIHP# 50-80-14-6660, a post-Contact trash deposit (O'Hare et al. 2006). In 2009, CSH conducted an archaeological inventory survey for the Queen Street Parks Project, which encompassed two parcels of land separated by Queen Street and bounded by Kamake'e Street, Auahi Street, Waimanu Street, and Pi'ikoi Street. The investigation encountered deposits relating to SIHP# 50-80-14-6856, a historic fishpond remnant (Thurman et al. 2009).

Documentation Limitations: T-178 was excavated to a depth of 1.47 mbs and beneath the water table at 1.40 mbs. There were no factors that limited excavation.

Stratigraphic Summary: The stratigraphy of T-178 consisted of fill strata to beneath the water table. Observed strata included asphalt (Ia), and extremely gravelly sand (Ib and Ic) to the water table. The stratigraphy conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: No artifacts were observed.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: No sample analysis was conducted.

GPR Discussion: A review of amplitude slice maps indicated no linear features which might indicate the presence of utilities. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-178 identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.2 mbs. No utilities were observed in the profile. The maximum depth of clean signal return was approximately 1.0 mbs.

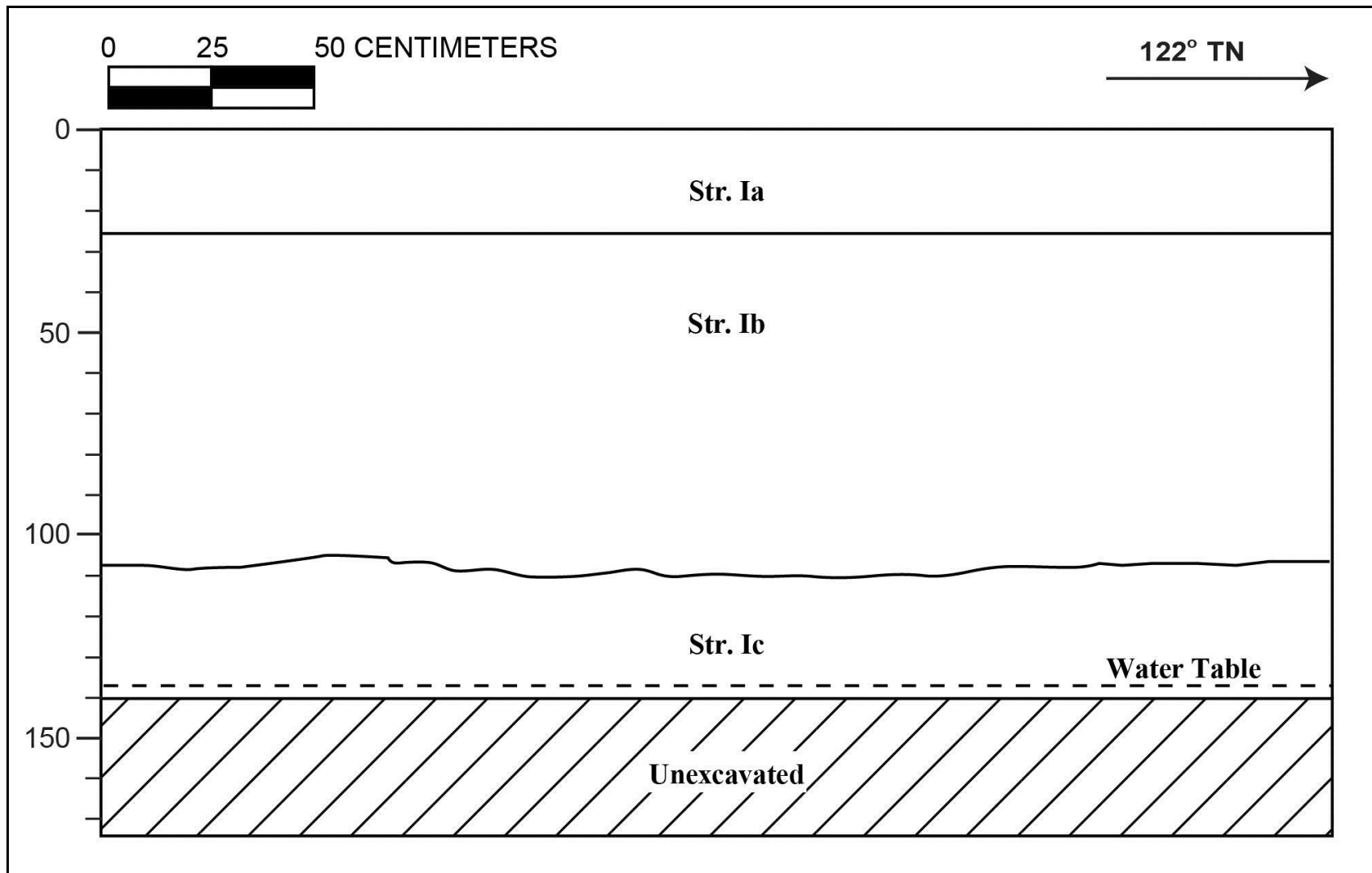
Summary: T-178 was excavated to a depth of 1.47 mbs and beneath the water table at 1.40 mbs. The stratigraphy of T-178 consisted of fill strata (Ia to Ic) to beneath the water table. The stratigraphy conformed to the USDA soil survey designation of Fill land (FL). No cultural resources were identified.



T-178 general location (view to northeast).



T-178 southwest profile wall (view to south).



T- 178 southwest wall profile.

T-178 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-25	Asphalt
Ib	25-112	Fill; 10 YR 7/3 (very pale brown); extremely gravelly sand; structureless, single grain; loose, moist consistency; non-plastic; mixed origin; clear, smooth lower boundary; crushed coral fill
Ic	112-147	Fill; 10 YR 4/1 (dark gray); extremely gravelly sand; structureless, single grain; loose, moist consistency; non-plastic; mixed origin; lower boundary not observed; construction-grade gravel ("3b" gravel)

4.30 Test Excavation 178A (T-178A)

Ahupua'a:	Honolulu
LCA:	387
TMK #:	2-3-002:001
Elevation Above Sea Level:	1.48 m
UTM:	619088 mE, 2355193 mN
Max Length/Width/Depth:	3.0 m / 1.0 m / 1.7 m
Orientation:	212 / 32° TN
Targeted Project Component:	Guideway Column
USDA Soil Survey Designation:	Fill land (FL)

Setting: Test Excavation 178A (T-178A) was located on the corner of Queen Street and Kamake'e Street. T-178A was located within a landscaped area in the east corner of the Office Depot parking lot. T-178A was an additional excavation added to further investigate the presence of the natural land surfaces in the surrounding area. T-178A also investigated a guideway column location. T-178A was on private property owned by Victoria Ward Ltd. Nearby utilities included a storm drain (6.0 m southeast of T-178A) and a water line (12.0 m southeast T-178A). The excavation surface was level with the surrounding topography.

Summary of Background Research and Land Use: Land Court Application 670 map 1 indicates that T-178A was originally situated on a large parcel of land awarded to the American Board of Commissioners for Foreign Missions (ABCFM) as part of LCA 387. The LCA testimonies indicated taro cultivation, fishpond farming, and salt production in the region. The 1884 Bishop map of Honolulu to Kewalo indicates that T-178A was located within marsh land called Kukuluao, 320.0 m southeast of LCA 10463:1, awarded to Napela. An unimproved or planned roadway is also depicted, extending northeast (*mauka*) to southwest (*makai*) within 300.0 m of T-178A. The roadway is also depicted on the 1887 Wall map of Honolulu. The 1897 Monsarrat map of Honolulu depicts infrastructure development immediately north of, and including T-178A, which is depicted within Queen Street and adjacent to the Queen Street and Kamake'e Street intersection. Expanded urbanization in the vicinity of T-178A is depicted throughout the series of twentieth century topographic maps and Sanborn fire insurance maps.

Several archaeological studies have been conducted in the vicinity of T-178A. In 2000, CSH conducted archaeological monitoring for Ward Village Phase II (Ward Theaters), approximately 90.0 m southwest of T-178A. A buried A-horizon and naturally-deposited pond sediments were documented in portions of the project area but, no cultural resources were assigned (Winieski and Hammatt 2001). In 2002, CSH conducted archaeological monitoring for the Kaka'ako Improvement District 7 (ID-7) Project along Kamake'e Street from Queen Street to Ala Moana Boulevard. Three human burials (SIHP# 50-80-14-6376, -6377, and -6378) were inadvertently discovered during the project, one of which was encountered within a beach sand deposit (Souza et al. 2002). In 2004, Pacific Consulting Services, Inc conducted a subsurface archaeological

inventory survey at Kapi'olani Boulevard and Kamake'e Street and noted remnants of the Kewalo wetlands surface (SIHP# 50-80-14-6636) (Clark and Gosser 2005). In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Project on Kapi'olani Boulevard, located approximately 230.0 m northeast of T-178A. No cultural resources were encountered (O'Leary and Hammatt 2006). In 2010, CSH conducted archaeological monitoring for a Traffic Signal Project around the intersection of Queen Street and Kamake'e Street, which included the location of T-178A. Portions of a truncated buried A-horizon overlying Jaucas sand were documented, and no cultural resources were encountered (Yamauchi et al. 2011). In 2006, CSH conducted an archaeological inventory survey for the Victoria Ward Village Shops Project, adjacent to Kaka'ako ID-7 District and bounded by Auahi Street, Kamake'e Street, and Queen Street. Three historic properties were identified: SIHP# 50-80-14-6854, a subsurface cultural layer containing both historic and prehistoric cultural material and five human burials; SIHP# 50-80-14-6855, a pre-Contact traditional Hawaiian cultural layer with six human burials; and SIHP# 50-80-14-6856, a historic fishpond remnant, part of Land Commission Grant 3194, "Kolowalu," awarded to Kalae and Kaaua (Bell et al. 2006). From 2003-2004, CSH conducted archaeological monitoring for the Queen Street extension from Kamake'e Street to Pi'ikoi Street as part of the Kaka'ako Community Improvement District 10 Project. Three historic properties were documented: SIHP# 50-80-14-6658, a cluster of 28 burials; SIHP# 50-80-14-6659, two isolated burials; and SIHP# 50-80-14-6660, a post-Contact trash deposit (O'Hare et al. 2006). In 2009, CSH conducted an archaeological inventory survey for the Queen Street Parks Project, which encompassed two parcels of land separated by Queen Street and bounded by Kamake'e Street, Auahi Street, Waimanu Street, and Pi'ikoi Street. The investigation encountered deposits relating to SIHP# 50-80-14-6856, a historic fishpond remnant (Thurman et al. 2009).

Documentation Limitations: T-178A was excavated to the coral shelf at a depth of 1.7 mbs. A PVC pipe was encountered at 0.20 mbs in the northeast portion of the excavation and another pipe was encountered at 0.28 mbs in the southwest portion of the excavation. These utilities shortened the length of the excavation. T-178A was hand-excavated due to the presence and further possibility of subsurface utilities.

Stratigraphic Summary: The stratigraphy of T-178A consisted of fill strata overlying natural sediment to the decomposing coral shelf. Observed strata included silty clay loam fill (Ia), loamy sand fill (Ib), very gravelly sandy loam fill (Ic), very gravelly sandy loam fill (Id), and very fine sand fill (Ie), overlying natural medium to coarse loamy sand (II), natural coarse sand (III), and natural clayey sand (IV), to the the decomposing coral shelf. The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL).

Artifacts Discussion: One brick (Acc. # 178A-A-1) was collected from Stratum Ic at 0.35 mbs. The brick was machine made between 1918 and 1978. The artifact collected from Stratum Ic was consistent with a post-twentieth century date.

Features Discussion: No features were observed.

Terrestrial Faunal Remains Collected During Excavation: No terrestrial faunal remains were collected individually during excavation.

Sample Results: One 15-liter sample of Stratum III was screened during fieldwork. No cultural material was identified within the bulk sediment sample.

GPR Discussion: A review of amplitude slice maps indicated no linear features although two utilities were encountered during excavation. Reflectivity was relatively uniform throughout the grid and decreases with depth. A transition from higher reflectivity to lower reflectivity was observed at approximately 0.5 mbs.

GPR depth profiles for T-178A identified horizontal banding, commonly associated with stratigraphic layering, throughout the survey area. This banding corresponded to variations of density and chemical composition within fill deposits. The profile also indicated a change in reflectivity occurring around 0.3 mbs. Several Anomalies were observed in the profile and could correspond to the utility along the northwest wall that was encountered during excavation. The maximum depth of clean signal return was approximately 1.0 mbs.

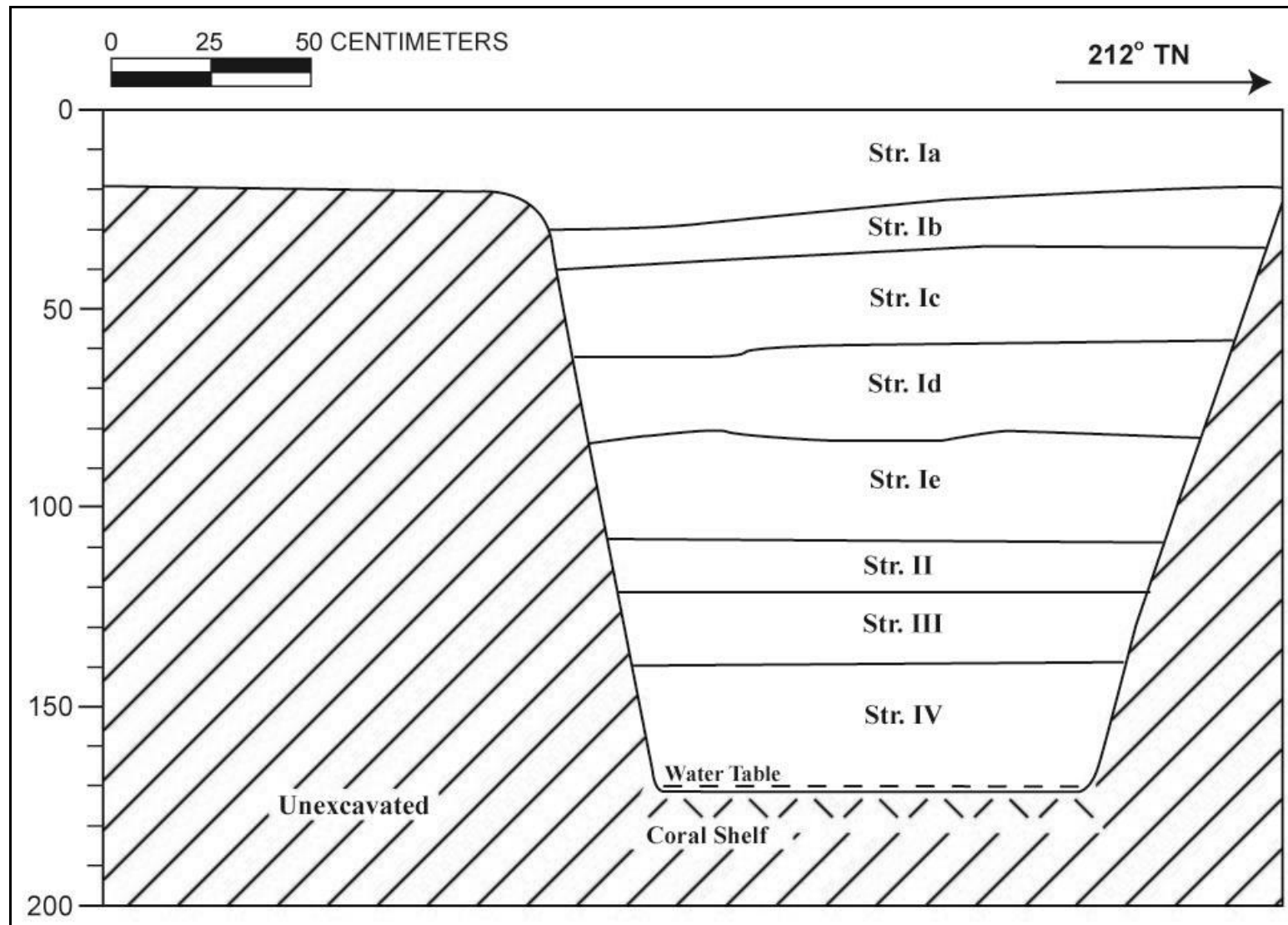
Summary: T-178A was excavated to the coral shelf at a depth of 1.7 mbs. The stratigraphy of T-178A consisted of fill strata (Ia to Ie) overlying natural sediment (II) to the decomposing coral shelf. The stratigraphy generally conformed to the USDA soil survey designation of Fill land (FL). One brick (Acc. # 178A-A-1) was collected from Stratum Ic at 0.35 mbs. The artifact collected from Stratum Ic was consistent with a post-twentieth century date. One 15-liter sample of Stratum III was screened during fieldwork. No cultural material was identified within the bulk sediment sample. No cultural resources were identified within T-178A.



T-178A general location (view to northeast)



T-178A southeast profile wall



T-178A southeast wall profile

T-178A Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-30	Fill; 10 YR 2/2 (very dark brown); silty clay loam; structureless, massive; moist, very friable consistency; slightly plastic; terrigenous origin; clear lower boundary; many coarse roots
Ib	20-40	Fill; 10 YR 4/2 (very dark grayish brown); loamy sand; structureless, single-grain; moist, very friable consistency; non-plastic; mixed origin; clear lower boundary; common, medium roots
Ic	35-60	Fill; 10 YR 3/2 (very dark grayish brown); very gravelly sandy loam; structureless, single-grain; moist, very friable; non-plastic; mixed origin; clear lower boundary; few, medium roots; red brick was found
Id	60-82	Fill; 5 YR 3/3 (dark reddish brown) with mottles of 10 R 3/4 (dusky red); very gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; clear, wavy lower boundary; few, fine roots.
Ie	82-103	Fill; 10 YR 8/3 (very pale brown) with mottles of 10 YR 5/6 (yellowish brown); very fine sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt boundary; few, fine roots; hydraulic fill banding
II	108-120	Natural; 10 YR 7/1 (light gray); medium coarse loamy sand; structureless, single-grain; moist, loose consistency; slightly plastic; mixed origin; diffuse and smooth boundary; buried A-horizon
III	120-140	Natural; 10 YR 6/2 (light brownish gray); coarse sand; structureless, single-grain; loose; non-plastic; marine origin; clear and smooth boundary; no roots.
IV	140-170	Natural; 10 YR 8/2 (very pale brown); clayey sand; structureless, single-grain; wet, non-sticky consistency; slightly plastic; marine origin; clear, smooth lower boundary